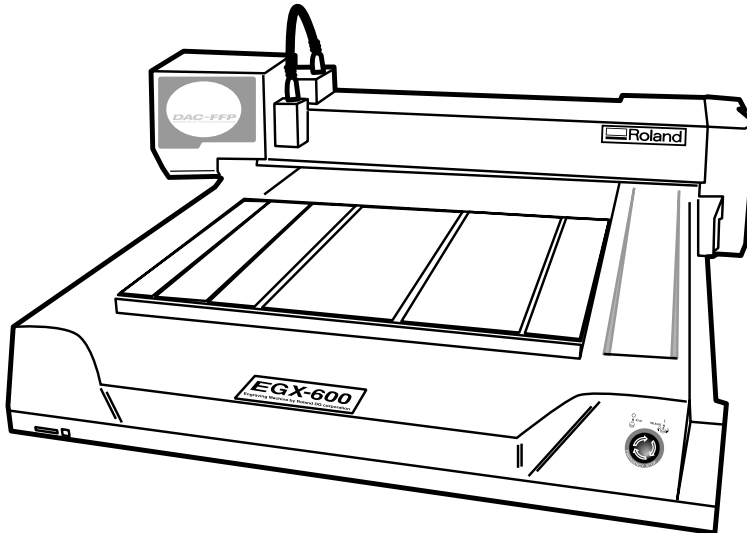


SERVICE NOTES

 Roland

EGX-600/400 EGX-600/400

Engraving Machine by Roland DG Corporation



Structure & Spare Parts

1

Electrical Section

2

Replacement of Main Parts

3

Adjustment

4

Supplemental Information

5

Troubleshooting

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Second Edition
EGX-600/400 '02. Jul.

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Roland DG Corporation



5893-01

Revision Record




[illegible]

To Ensure Safe Work

About ⚠️ **WARNING** and ⚠️ **CAUTION** Notices.

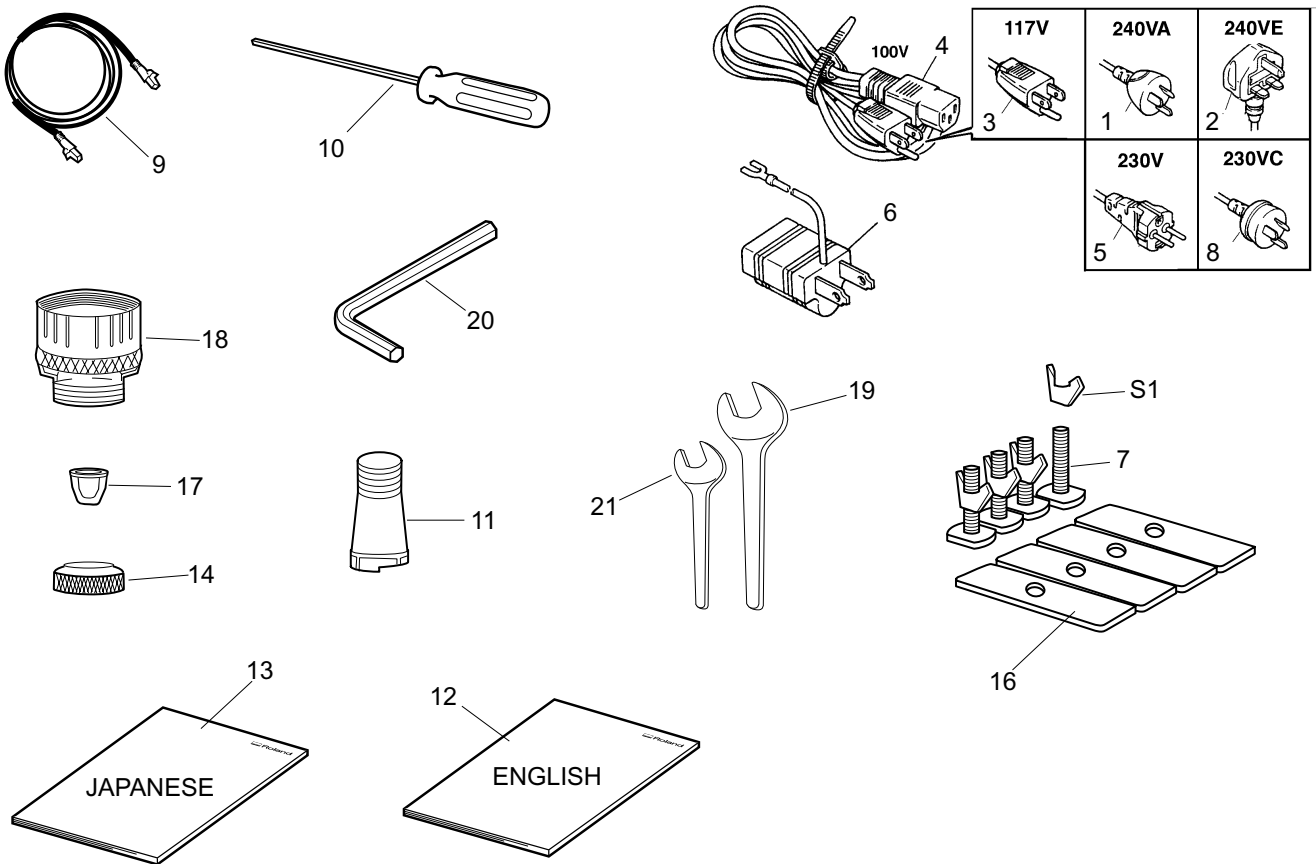
 WARNING	Used for instructions intended to alert the operator to the risk of death or severe injury should the unit be used improperly.
 CAUTION	Used for instructions intended to alert the operator to the risk of injury or material damage should the unit be used improperly. * material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

About the Symbols

	The ⚡ symbol alerts the user to important instructions or warnings. The specific meaning of the symbol is determined by the design contained within the triangle. The symbol at left means danger of electrocution.
	The 🚫 symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. The symbol at left means not to touch.
	The 🔌 symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. The symbol at left means the power-cord plug must be unplugged from the outlet.

1 Structure & Spare Parts

1-1 ACCESSORY



accessory

PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	23495124	AC CORD 3ASL/100 240VA 10A SAA
2	13499111	AC CORD H05VV-F 240VE 10A S
3	13499109	AC CORD SJT 117V 10A 3PVC
4	23495214	AC CORD VCTF 100V 7A 3P-S
5	23495125	AC-CORD H05VV 230V 10A S
6	13499209	ADAPTER PLUG (100V)
7	21815108	BOLT,T-SLOT EGX-600
8	13439801	CABLE-AC 3P CHINA 10A/250V S
9	13509781	CABLE-ASSY HCL-T5-1MP-BL 1M
10	12569515	HEXAGONAL WRENCH
11	21655242	HOLDER,COLLET 4.36 EGX-600
12	26015374	MANUAL,USE EN EGX-600
13	26015373	MANUAL,USE JP EGX-600
14	21575104	NUT,KNURLED RETAINER PNC-2300
15	22055278	PLATE,CLAMP PNC-2300
16	21515102	RING,DEPTHNOSE PNC-2300
17	21515101	RING,MICROMETER DIAL PNC-2300
18	12569304	SPANNER 17MM
19	21935130	TOOL,HEXAGON 3 ZN
20	11939106	TOOL,SPANNER 10

PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31099108	NUT,WING 2SYU M6 BC

This exploded view diagram illustrates the assembly of a device, likely a control panel or a specialized electronic unit. The components are numbered as follows:

- 33**: Top panel with a grid of buttons or indicators.
- 22**: Small circular component, possibly a button or cap.
- 34**: Small circular component, possibly a button or cap.
- 9**: Main control panel with a grid of buttons.
- 30**: Component with a grid of pins or connectors.
- 2**: A bracket or support structure.
- S2**: Screws used for assembly.
- 31**: A small component, possibly a switch or connector.
- 21**: A small component, possibly a switch or connector.
- 6**: A rectangular frame or base.
- 19**: A small component, possibly a switch or connector.
- S3**: Screws used for assembly.
- S6**: A screwdriver or tool.
- 16**: A long, narrow component, possibly a rail or guide.
- 8**: A component with a grid of pins or connectors.
- S7**: Screws used for assembly.
- 29**: A small component, possibly a switch or connector.
- 25**: A small component, possibly a switch or connector.
- 19**: A small component, possibly a switch or connector.
- 10**: A component with a grid of pins or connectors.
- 18**: A component with a grid of pins or connectors.
- S11**: Screws used for assembly.
- 5**: A small component, possibly a switch or connector.
- 32**: A small component, possibly a switch or connector.
- 3**: A small component, possibly a switch or connector.
- 1**: A small component, possibly a switch or connector.
- 4**: A small component, possibly a switch or connector.
- S10**: Screws used for assembly.
- S1**: Screws used for assembly.
- 11**: A component with a grid of pins or connectors.
- S9**: Screws used for assembly.
- 27**: A small component, possibly a switch or connector.
- 20**: A component with a grid of pins or connectors.
- 13**: A component with a grid of pins or connectors.
- S1**: Screws used for assembly.
- 35**: A small component, possibly a switch or connector.
- 26**: A small component, possibly a switch or connector.
- 28**: A small component, possibly a switch or connector.
- 23**: A small component, possibly a switch or connector.
- 15**: A component with a grid of pins or connectors.
- S7**: Screws used for assembly.
- 24**: A small component, possibly a switch or connector.
- 14**: A component with a grid of pins or connectors.
- S1**: Screws used for assembly.
- 12**: A component with a grid of pins or connectors.
- S1**: Screws used for assembly.
- 35**: A small component, possibly a switch or connector.
- S1**: Screws used for assembly.
- 7**: A component with a grid of pins or connectors.
- S4**: Screws used for assembly.

PARTS LIST -Main Parts-

	Parts No.	Parts Name	EGX-400	EGX-600
1	13429701	AC INLET SUP-J15G-E		
2	22805450	ASS'Y,CONTROLLER EGX-600		
3	23505780	CABLE-ASSY GND EGX-600		
4	23505776	CABLE-ASSY JUNBI1 EGX-600		
5	23505777	CABLE-ASSY JUNBI5 EGX-600		
6	22815146	CHASSIS,CONTROLLER EGX-600		
7	22025642	COVER,CABLE GUIDE EGX-400		*
	22025643	COVER,CABLE GUIDE EGX-600	*	
8	22025641	COVER,CONTROL CHASSIS EGX-400		*
	22025635	COVER,CONTROL CHASSIS EGX-600	*	
9	22025625	COVER,CONTROLLER EGX-600		
10	22025666	COVER,MAIN BOARD EGX-600		
11	22025667	COVER,Y FRAME CORNER 2 EGX-600		
12	22025664	COVER,Y FRAME CORNER EGX-600		
	22025650	COVER,Y FRAME L EGX-400		*
13	22025649	COVER,Y FRAME L EGX-600	*	
	22025662	COVER,Y FRAME R EGX-400		*
14	22025663	COVER,Y FRAME R EGX-600	*	
	22025658	COVER,Y-BASE FRONT EGX-400 (3/5)		*
15	22025653	COVER,Y-BASE FRONT EGX-600 (3/5)	*	
	22025659	COVER,Y-BASE L EGX-400 (4/5)		*
16	22025654	COVER,Y-BASE L EGX-600(4/5)	*	
	22025660	COVER,Y-BASE R EGX-400 (5/5)		*
18	22025655	COVER,Y-BASE R EGX-600(5/5)	*	
19	12239406	CUSHION,TM-96-6		
	7589418000	EGX-400 FRAME-ASSY		*
20	7589318000	EGX-600 FRAME-ASSY	*	
21	W589356020	EGX-600 JOG BOARD ASS'Y		
22	22475110	KNOB,L MCG MDX-500		
23	22535349	LABEL,CARD SLOT EGX-600 #LA425		
24	22535352	LABEL,EMERGENCY EGX-600 #LA428		
25	22535348	LABEL,INTERFACE EGX-600 #LA424		
	22535351	LABEL,LOGO EGX-400 #LA427		*
26	22535350	LABEL,LOGO EGX-600 #LA426	*	
27	22535117	LABEL,POWER CM-500 NO.893		
28	22535362	LABEL,RISK WARN EGX-600 #LA454		
29	22535123	LABEL,STANDARD(131)No.910		
30	W589356090	EGX-600 LCD BOARD ASS'Y		
31	W589356030	EGX-600 PANEL BOARD ASS'Y		
32	13129171	POWER-SW AJ8201B		
33	21475137	SHEET,CONTROLLER EGX-600		
34	22255217	SHIELD,JOG MDX-500		
35	11879126	ABSORBER,C-30-RK-3225		

PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31019115	SCREW,BINDING M3*4 BC
S2	31019709	SCREW,BINDING P-TIGHT 2.6*4 BC
S3	31019702	SCREW,BINDING P-TIGHT 3*6 BC
S4	31049111	SCREW,CAP M4*8 BC
S6	31329601	CLAMP,INSULOK T-18S
S7	31289105	CUPSCREW, M3*6 BC
S8	31279183	LABEL,CATION AIRGUN No.473
S9	31279116	LABEL,EARTH MARK-1 NO.E-580
S10	31279195	LABEL,NAME EXPRESSION No.450
S11	31079101	SCREW,OVAL M3*8 BC

This exploded view diagram illustrates the assembly of a machine, likely a sewing machine or a similar textile device. The components are labeled with numbers and callouts:

- Parts 1-43:** Various structural and functional components, including a main frame (1), a long horizontal bar (5), a motor assembly (26), a foot assembly (22), and a base plate (24) featuring the Roland logo.
- Callouts S1-S14:** Specific screws and fasteners used throughout the assembly.
- Assembly Sequence:** The diagram shows the hierarchical assembly from the base plate (24) and motor (26) up to the final assembly (1).

PARTS LIST -Main Parts-

	Parts No.	Parts Name		
1	22805454	ASS'Y,HOLDER BEARING EGX-600		
2	22355794	BASE,X-MOTOR EGX-600		
3	22175815	BEARING F8-16ZZ		
4	11929132	BELT,100S2M240UG		
5	11929136	BELT,150S2M555LW-C		*
	11929134	BELT,150S2M755LW-C		*
6	21985135	BRACKET,Y-CABLE EGX-600		
7	23475182	CABLE-CARD 28P 1100L BB HIGH-V		*
	23475180	CABLE-CARD 28P 1300L BB HIGH-V		*
8	23475181	CABLE-CARD 28P 1380L BB HIGH-V		*
	23475179	CABLE-CARD 28P 1740L BB HIGH-V		*
9	11769118	CLAMP,FCM2-S6-14		
10	22025646	COVER,BELT HOLDER EGX-600		
11	22025636	COVER,BRACKET Y-CABLE EGX-600		
12	22025448	COVER,SIDE L EGX-600		
13	22025657	COVER,SIDE R EGX-400 (2/5)		*
	22025652	COVER,SIDE R EGX-600 (2/5)		*
14	22025639	COVER, TOP EGX-400		*
	22025637	COVER, TOP EGX-600		*
15	22025640	COVER,X-FRONT EGX-400		*
	22025638	COVER,X-FRONT EGX-600		*
16	W589356010	EGX-600 XY BOARD ASS'Y		
17	7589317000	EGX-600 CHASSIS,X-Y BOARD ASSY		
18	21655237	HOLDER,BEARING X EGX-600		
19	21655232	HOLDER,BELT EGX-600		
20	21655235	HOLDER,X-CABLE EGX-400		*
	21655233	HOLDER,X-CABLE EGX-600		*
21	21655239	HOLDER,X-IDLE PULLEY EGX-600		
22	21655236	HOLDER,Y-CABLE EGX-400		*
	21655234	HOLDER,Y-CABLE EGX-600		*
23	22535347	LABEL,CAUTION PINCH-2 #LA423		
24	22535356	LABEL,CORPORATE LOGO TYPE#LA437		
25	21895144	L-BEARING,HSR15R2SSE+580L-2		*
	21895143	L-BEARING,HSR15R2SSE+760L-1		*
26	22435425	MOTOR,XY EGX-600		
27	21975151	PULLEY,100S2M0100 EGX-600		
28	21975152	PULLEY,20S2M0100SF EGX-600		
29	21975153	PULLEY,30S2M0150SF EGX-600		
30	22185429	RAIL,X EGX-400		*
	22185428	RAIL,X EGX-600		*
31	12179721	R-BEARING JIS6000ZZ (B8)		
32	11889127	R-BEARING,DDL-1910ZZ		
33	22295259	SHAFT,X-DRIVE EGX-600		
34	22185123	SLIDER,Y L EGX-600		
35	22185124	SLIDER,Y R EGX-600		
36	22175318	SPRING,X-DRIVE EGX-600		
37	22715310	STAY,SIDE L EGX-600		
38	22715307	STAY,X-BELT HOLDER EGX-600		
39	22715300	STAY,X-IDLE PULLEY EGX-600		
40	22135430	STOPPER,CABLE2 EGX-600		
41	22135428	STOPPER,CARRIAGE EGX-600		
42	22135431	STOPPER,X-DRIVE EGX-600		
43	22175687	X-IDLE PULLEY		

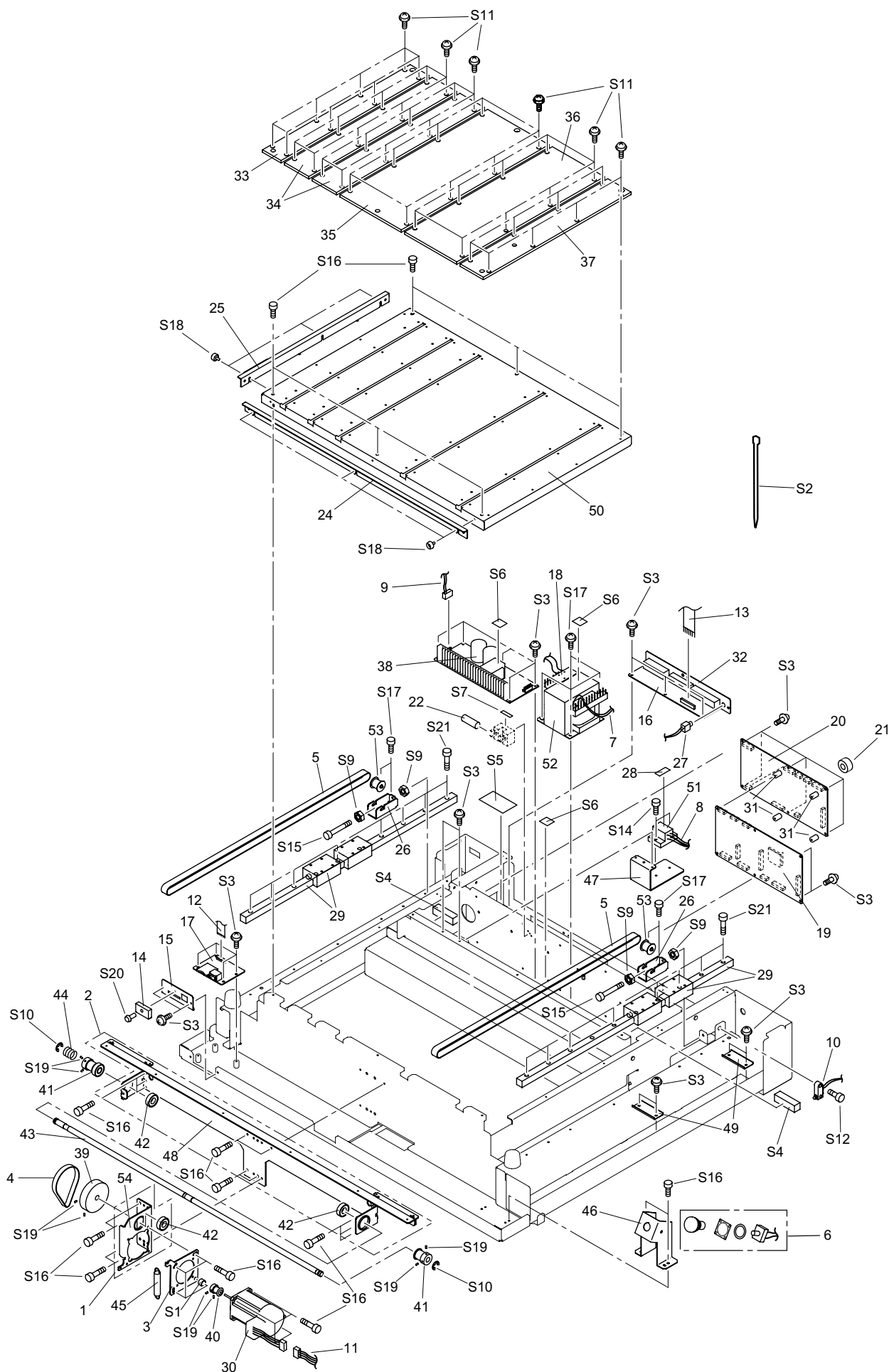
EGX-600 EGX-400

PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31029817	BUSH,ROLL 4*15
S2	31029823	BUSH,ROLL 4*2,5
S3	31329601	CLAMP,INSULOK T-18S
S4	31289105	CUPSCREW, M3*6 BC
S5	31109802	NUT,HEXAGON M4 C
S6	31119902	PIN,SPRING 4*16 SUS JAG
S7	31149709	RING,E-RING CONIC BETW-7 SUS
S8	31049167	SCREW,CAP M4*35BC ALL THREADED
S9	31049111	SCREW,CAP M4*8 BC
S10	31049169	SCREW,CAP M4*8 BC+PW4*10*0.8
S11	31139101	SCREW,PLAPOINT M3*6 BK FE
S12	31199703	SCREW,SET WP M3*6 BC
S13	31049136	SCRWE,CAP M4*20 BC
S14	31249225	WASHER,3*12*1 BC

1-4 Y AXIS

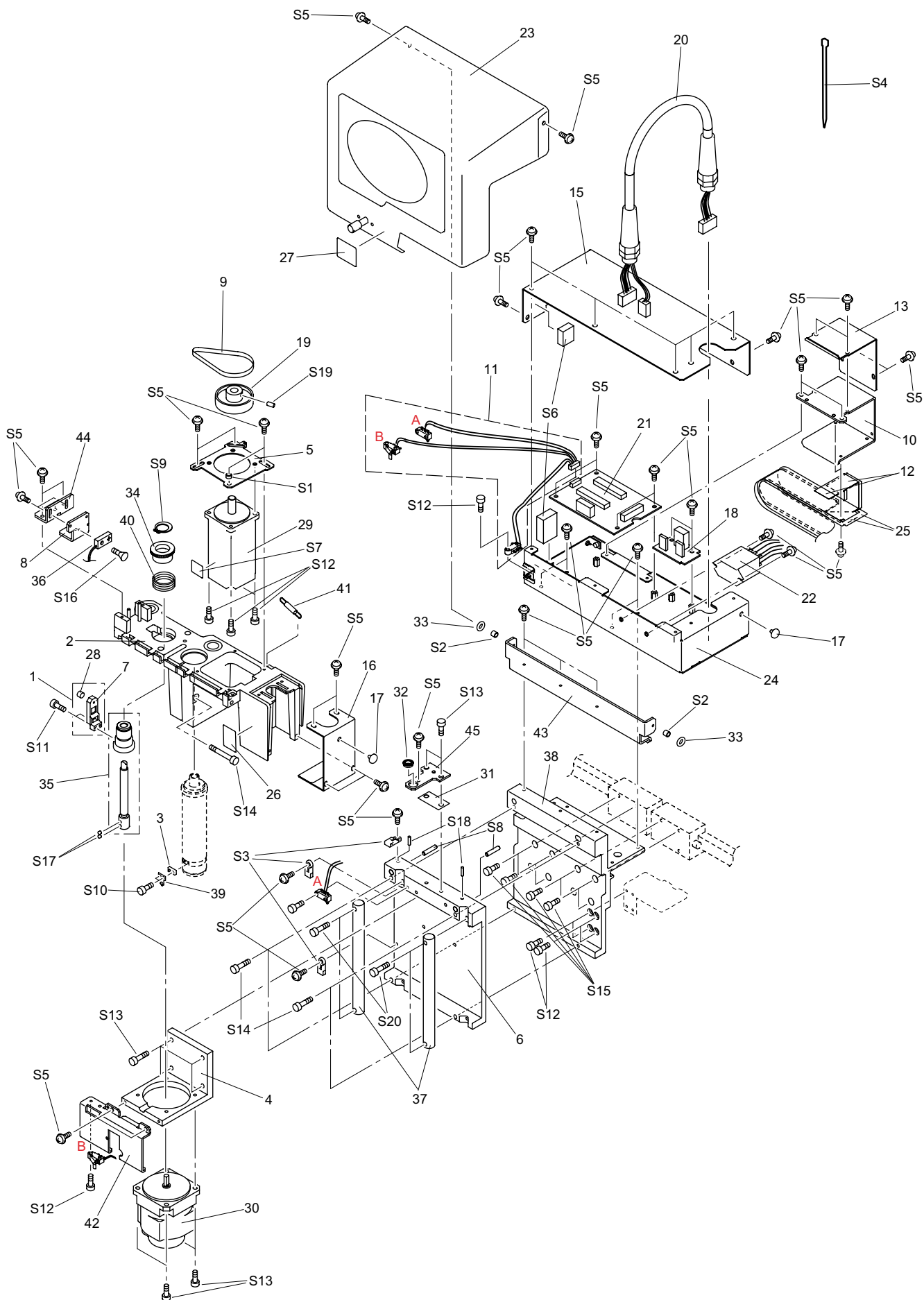
1



PARTS LIST -Main Parts-				PARTS LIST -Supplemental Parts-			
	Parts No.	Parts Name			Parts No.	Parts Name	
1	22805453	ASS'Y,BASE Y-DRIVE EGX-600		S1	31029823	BUSH,ROLL 4*2,5	
2	22805452	ASS'Y,STAY Y-DRIVE EGX-400	*	S2	31329601	CLAMP,INSULOK T-18S	
	22805451	ASS'Y,STAY Y-DRIVE EGX-600	*	S3	31289105	CUPSCREW, M3*6 BC	
3	22355795	BASE,Y-MOTOR EGX-600		S4	31059110	CUTION,COVER CABLE 519M0433	
4	11929132	BELT,100S2M240UG		S5	31279191	LABEL,CAUTION FUSE #347	
5	11929135	BELT,150S2M467LW-C	*	S6	31279121	LABEL,FLASH-LIGHTING NO.E-582	
	11929133	BELT,150S2M569LW-C	*	S7	31279124	LABEL,FUSE 4.0A 125V NO.E-575	
6	23505767	CABLE-ASSY EMG EGX-400	*		31279127	LABEL,FUSE T2A/250V NO.E-574	
	23505768	CABLE-ASSY EMG EGX-600	*	S9	31109802	NUT,HEXAGON M4 C	
7	23505778	CABLE-ASSY JUNBI6 EGX-600		S10	31149705	RING,E-RING ETW-7 SUS	
8	23505779	CABLE-ASSY JUNBI7 EGX-600		S11	31019117	SCREW,BINDING M3*8 BC	
9	23505773	CABLE-ASSY POWER2		S12	31049106	SCREW,CAP M3*8 BC	
10	23505765	CABLE-ASSY Y LIMIT EGX-400	*	S14	31049113	SCREW,CAP M4*12 BC	
	23505766	CABLE-ASSY Y LIMIT EGX-600	*	S15	31049167	SCREW,CAP M4*35BC ALL THREADED	
11	23505774	CABLE-ASSY YM EGX-400	*	S16	31049111	SCREW,CAP M4*8 BC	
	23505775	CABLE-ASSY YM EGX-600	*	S17	31049169	SCREW,CAP M4*8 BC+PW4*10*0.8	
12	23475138	CABLE-CARD 20P 1120L BB HIGH-V		S18	31139101	SCREW,PLAPOINT M3*6 BK FE	
13	23475184	CABLE-CARD 30P 120L BB		S19	31199703	SCREW,SET WP M3*6 BC	
14	22335145	CAP,MEMORYSLT EGX-600		S20	31179907	SCREW,UREA M3*20 N-1 BK	
15	22025644	COVER,MEMORY SLOT EGX-600		S21	31049136	SCRWE,CAP M4*20 BC	
16	W589356050	EGX-600 IF BOARD ASS'Y					
17	W589356080	EGX-600 MMC BOARD ASS'Y					
18	W589356060	EGX-600 TRANS BOARD 1 ASS'Y					
19	7589350000	EGX-600 MAIN BOARD ASS'Y					
20	7589353000	EGX-600 SPINDLE BOARD ASS'Y					
21	12399313	FILTER(E) TR-20-10-10					
22	12559570	FUSE 5X20 CEE-2AT WICKMANN					
	12559444	FUSE 5X20 SB4 (4A)					
24	22135613	GUIDE,X-SCALE EGX-400	*				
	22135611	GUIDE,X-SCALE EGX-600	*				
25	22135612	GUIDE,Y-SCALE EGX-400	*				
	22135609	GUIDE,Y-SCALE EGX-600	*				
26	21655240	HOLDER,Y-IDLE PULLEY EGX-600					
27	7559306100	JACK ASS'Y EGX-300					
28	22535361	LABEL,N EGX-600 #LA453					
29	21895145	L-BEARING,HSR15R2SSE+460L-2	*				
	21895144	L-BEARING,HSR15R2SSE+580L-2	*				
30	22435425	MOTOR,XY EGX-600					
31	2215352600	NUT					
32	22055522	PLATE,INTERFACE EGX-600					
33	22055530	PLATE,T-SLOT 1 EGX-400	*				
	22055523	PLATE,T-SLOT1 EGX-600	*				
34	22055531	PLATE,T-SLOT 2 EGX-400	*				
	22055524	PLATE,T-SLOT2 EGX-600	*				
35	22055532	PLATE,T-SLOT 3 EGX-400	*				
	22055525	PLATE,T-SLOT3 EGX-600	*				
36	22055526	PLATE,T-SLOT4 EGX-600	*				
37	22055527	PLATE,T-SLOT5 EGX-600	*				
38	12429113U0	POWER UNIT,ZWS120PPF-36					
39	21975151	PULLEY,100S2M0100					
40	21975152	PULLEY,20S2M0100SF					
41	21975153	PULLEY,30S2N0150SF					
42	12179721	R-BEARING JIS6000ZZ (B8)					
43	22295261	SHAFT,Y-DRIVE EGX-400	*				
	22295260	SHAFT,Y-DRIVE EGX-600	*				
44	22175217	SPRING,SOLENOID MDX-500					
45	22175316	SPRING,Y-DRIVE EGX-600					
46	22715299	STAY,EMARGENCY SW EGX-600					
47	22715311	STAY,TERMINAL BLOCK EGX-600					
48	22715301	STAY,Y-DRIVE EGX-400	*				
	22715302	STAY,Y-DRIVE EGX-600	*				
49	22135430	STOPPER,CABLE2 EGX-600					
50	21965146	TABLE,T-SLOT EGX-400	*				
	21965145	TABLE,T-SLOT EGX-600	*				
51	12729102	TERMINAL-BLOCK BTBH15LC2P					
52	22455116U0	TRANSFORMER-PW1 EGX-600					
53	22175687	X-IDLE PULLEY					
54	22355796	BASE,Y-DRIVE EGX-600					

1-5 Z AXIS

1



PARTS LIST -Main Parts-

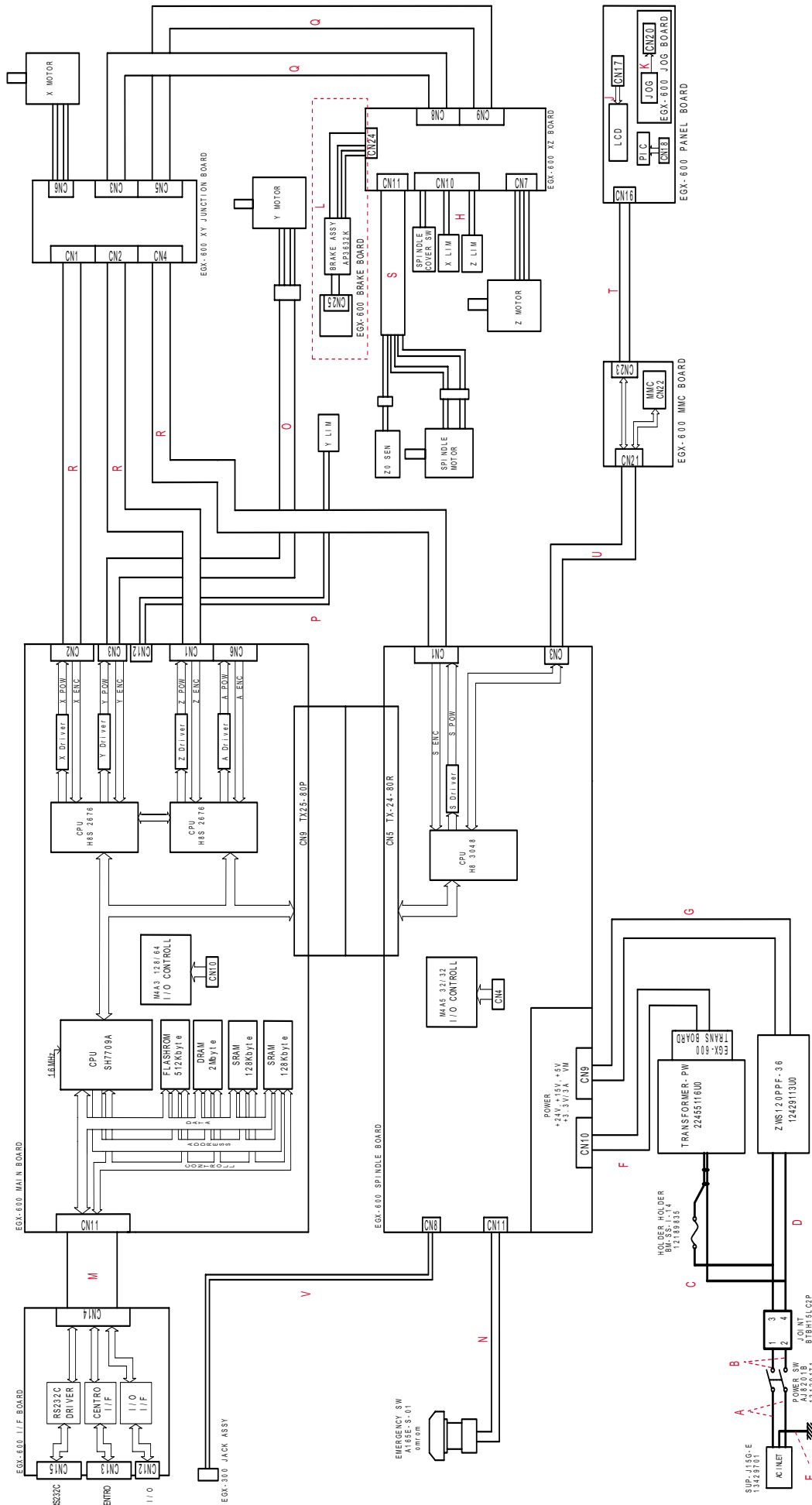
PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name				Parts No.	Parts Name
1	22805456	ASS'Y,BASE Z SLIDE EGX-600				S1	31029820 BUSH,ROLL 3*2
2	22805455	ASS'Y,SLIDER Z EGX-600				S2	31029802 BUSH,ROLL 3*3.5
3	22355793	BASE,MICROMETER DIAL EGX-600				S3	31499101 CLAMP,BASE SKM-1
4	22355800	BASE,MOTOR Z EGX-600				S4	31329601 CLAMP,INSULOK T-18S
5	22355798	BASE,SPINDLE MOTOR EGX-600				S5	31289105 CUPSCREW, M3*6 BC
6	22355799	BASE,Z EGX-600				S6	31059110 CUTION,COVER CABLE 519M0433
7	22355792	BASE,Z SLIDE EGX-600				S7	31279106 LABEL,CAUTION HOT SURF No.778
8	22355797	BASE,ZO SENSOR EGX-600				S8	31119115 PIN,PARALLEL 6*25 SUS H7
9	11929131	BELT,A-1CEBRF 5*170				S9	31149503 RING,C CTW-14 SUS
10	21985134	BRACKET,X-CABLE EGX-600				S10	31049102 SCREW,CAP M2*6 BC
11	23505771	CABLE-ASSY SENS EGX-600				S11	31049103 SCREW,CAP M2*8 BC
12	23475182	CABLE-CARD 28P 1100L BB HIGH-V		*		S12	31049106 SCREW,CAP M3*8 BC
	23475180	CABLE-CARD 28P 1300L BB HIGH-V		*		S13	31049113 SCREW,CAP M4*12 BC
13	22025647	COVER,BRACKET X-CABLE EGX-600				S14	31049167 SCREW,CAP M4*35BC ALL THREADED
15	22025648	COVER,X-Z JUNCTIONBOARD EGX-600				S15	31049111 SCREW,CAP M4*8 BC
16	22025645	COVER,Z-CABLE EGX-600				S16	31169115 SCREW,FLAT M2*8 BC
17	12239406	CUSHION,TM-96-6				S17	31199710 SCREW,SET WP M3*3 BC
18	W589356040	EGX-600 BRAKE BOARD 2 ASS'Y				S18	31199703 SCREW,SET WP M3*6 BC
19	7589320000	EGX-600 PULLEY M PP				S19	31199711 SCREW,SET WP M4*8 BC
20	7589359000	EGX-600 SPINDLE CABLE ASSY				S20	31049136 SCRWE,CAP M4*20 BC
21	W589356070	EGX-600 XZ BOARD ASS'Y					
22	7589360000	EGX-600 BRAKE ASSY					
23	7589407000	EGX-400 COVER,Z ASSY(1/5)		*			
	7589307000	EGX-600 COVER,Z ASSY(1/5)		*			
24	7589319000	EGX-600 STAY,X-Z BOARD ASSY					
25	21655235	HOLDER,X-CABLE EGX-400		*			
	21655233	HOLDER,X-CABLE EGX-600		*			
26	22535213	LABEL,CAUTION TOOL MDX-15#LA58					
27	22535355	LABEL,COVER LOCK EGX-600 #LA436					
28	22395130	MAGNET PR1008P157B					
29	22435427	MOTOR,SPINDLE EGX-600					
30	22435426	MOTOR,Z EGX-600					
31	22055535	PLATE,RUBBER Z EGX-600					
32	11889107	R-BEARING,D10S6(B3FL)					
33	11519107	RING,O P4					
34	21495140	SCREW,Z ADJUST EGX-600					
35	21495141	SCREW,Z-AXIS ASSY EGX-600					
36	25095116	SENSOR,HALL AN9153 ASSY					
37	22295262	SHAFT,Z EGX-600					
38	22185125	SLIDER,X EGX-600					
39	22175309	SPRING,MICROMETER DIAL EGX-600					
40	22175311	SPRING,NOSE GUARD EGX-600					
41	22175320	SPRING,SP MOTOR EGX-600					
42	22715304	STAY,COVER SW EGX-600					
43	22715305	STAY,COVER Z EGX-600					
44	22715303	STAY,SENSOR EGX-600					
45	22325440	SUPPORT,Z-SCREW EGX-600					

2 Electrical Section

2-1 WIRING MAP

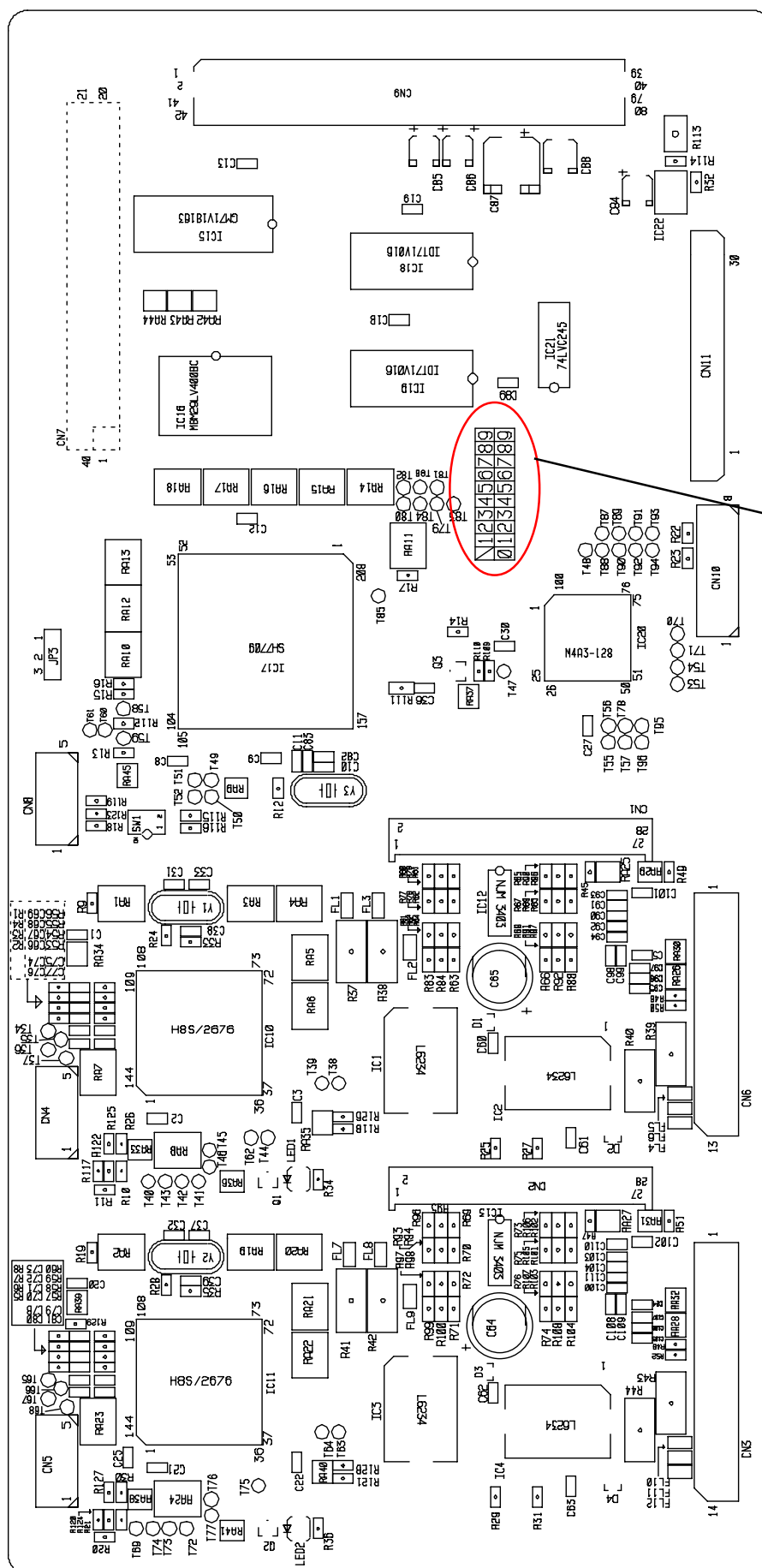
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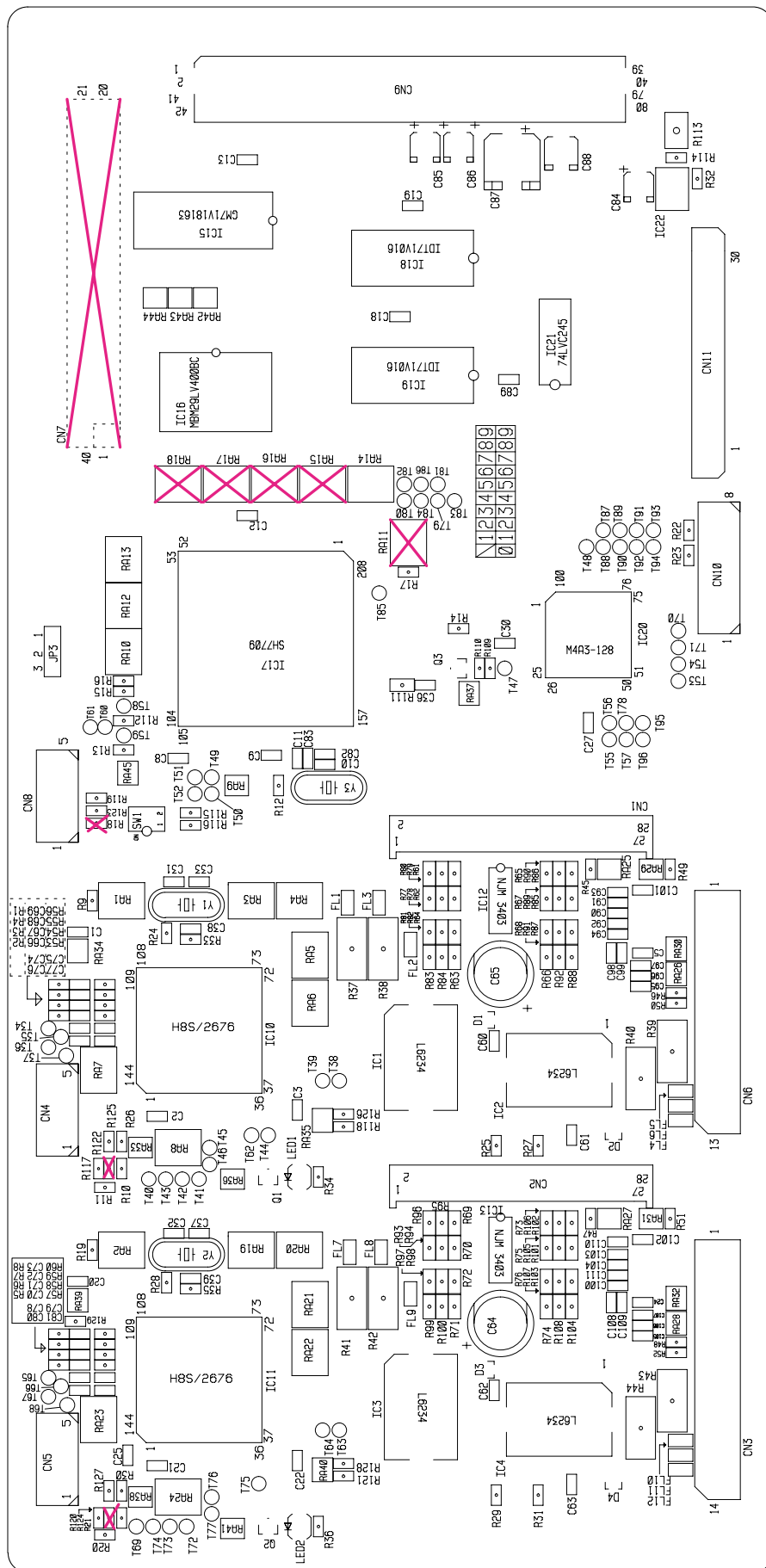
Parts No.	Parts Name	EGX-600	EGX-400
A 23505776	CABLE-ASSY JUNB11	EGX-600	EGX-400
B 23505777	CABLE-ASSY JUNB15	EGX-600	EGX-400
C 23505778	CABLE-ASSY JUNB16	EGX-600	EGX-400
D 23505779	CABLE-ASSY JUNB17	EGX-600	EGX-400
E 23505780	CABLE-ASSY GND	EGX-600	EGX-400
F 23505772	CABLE-ASSY POWER1	EGX-600	EGX-400
G 23505773	CABLE-ASSY POWER2	EGX-600	EGX-400
H 23505771	CABLE-ASSY SENS	EGX-600	EGX-400
J 23505769	CABLE-ASSY LCD	EGX-600	EGX-400
K 23505764	CABLE-ASSY ENCODER	EGX-600	EGX-400
L 7589360000	BRAKE-ASSY	EGX-600	EGX-400
M 23475184	CABLE-CARD 30P 120L BB	EGX-600	EGX-400
N 23505768	CABLE-ASSY EMG	EGX-600	EGX-400
O 23505775	CABLE-ASSY YM	EGX-600	EGX-400
P 23505766	CABLE-ASSY Y LIMIT	EGX-600	EGX-400
Q 23475180	CABLE-CARD 28P 1300L BB HIGH-V	EGX-600	EGX-400
R 23475182	CABLE-CARD 28P 1100L BB HIGH-V	EGX-600	EGX-400
S 7589359000	ASSY SPINDLE CABLE	EGX-600	EGX-400
T 13509781	CABLE-ASSY HLC-15-1MP-BL 1M	EGX-600	EGX-400
U 23475138	CABLE-CARD 20P 1120L BB HIGH-V	EGX-600	EGX-400
V 7559306100	JACK ASSY	EGX-600	EGX-400

2-2 MAIN BOARD ASS'Y

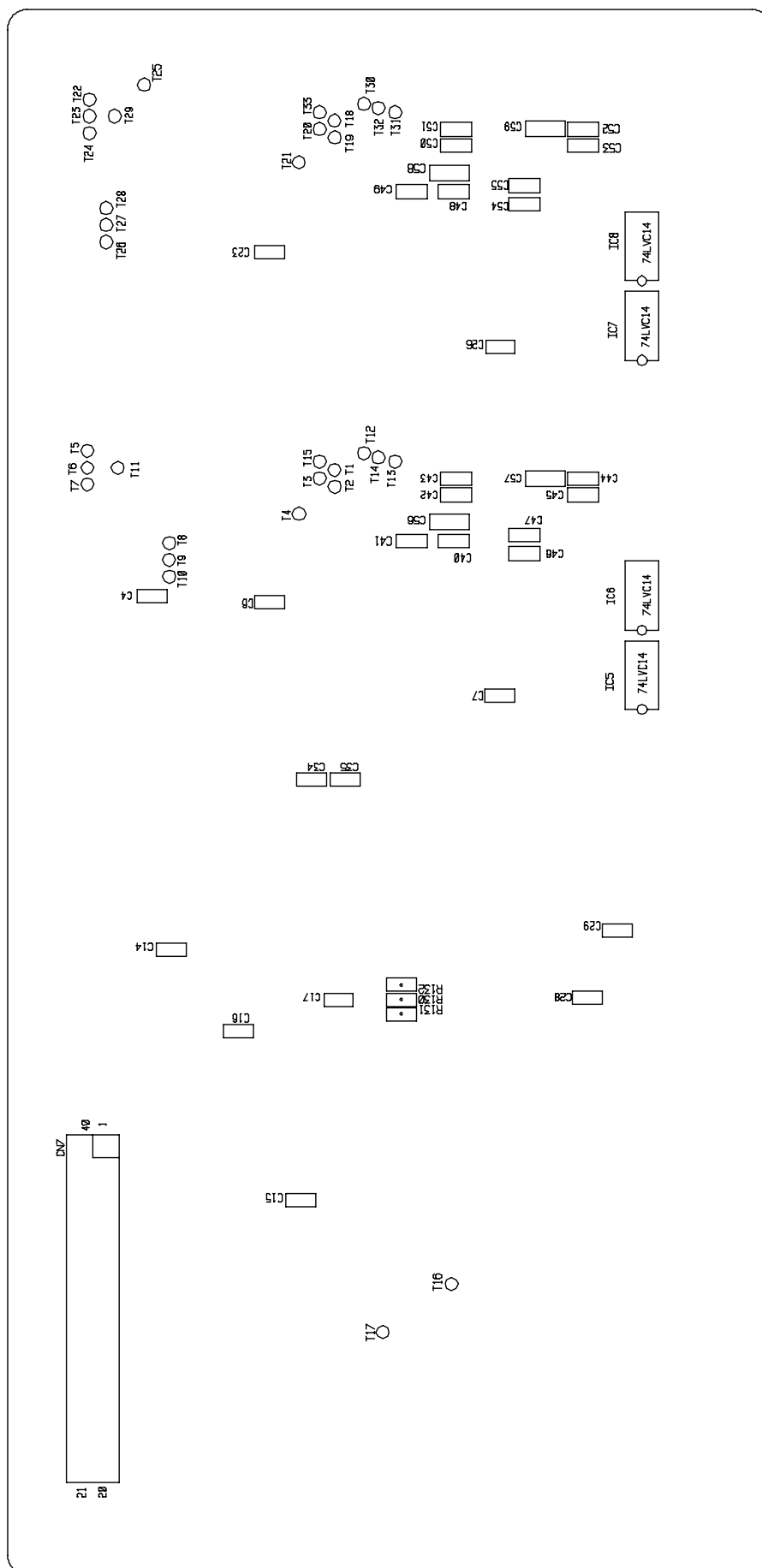
Main Board_Arrangement Diagram / component side

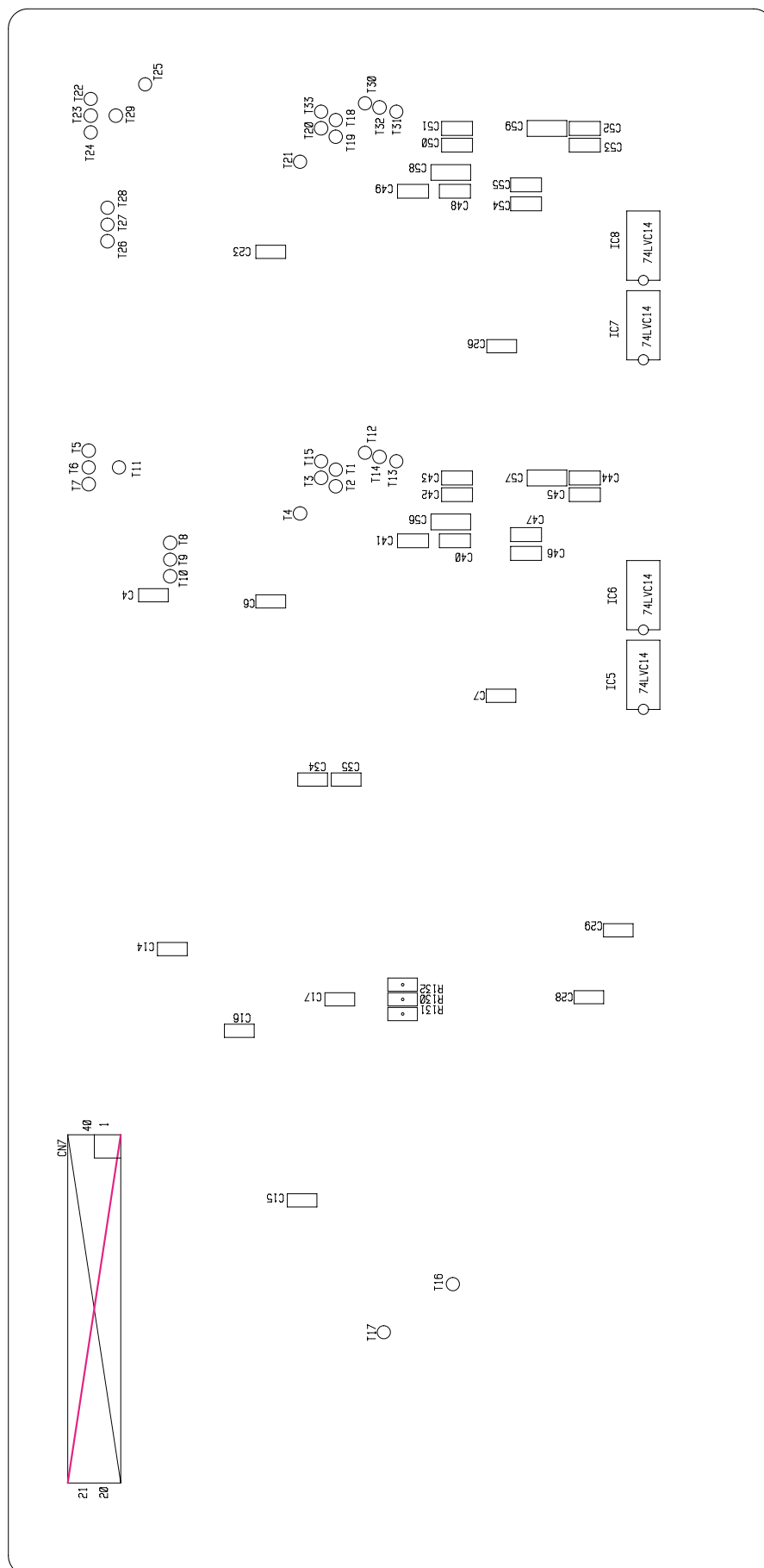


Main Board_Component Diagram / component side

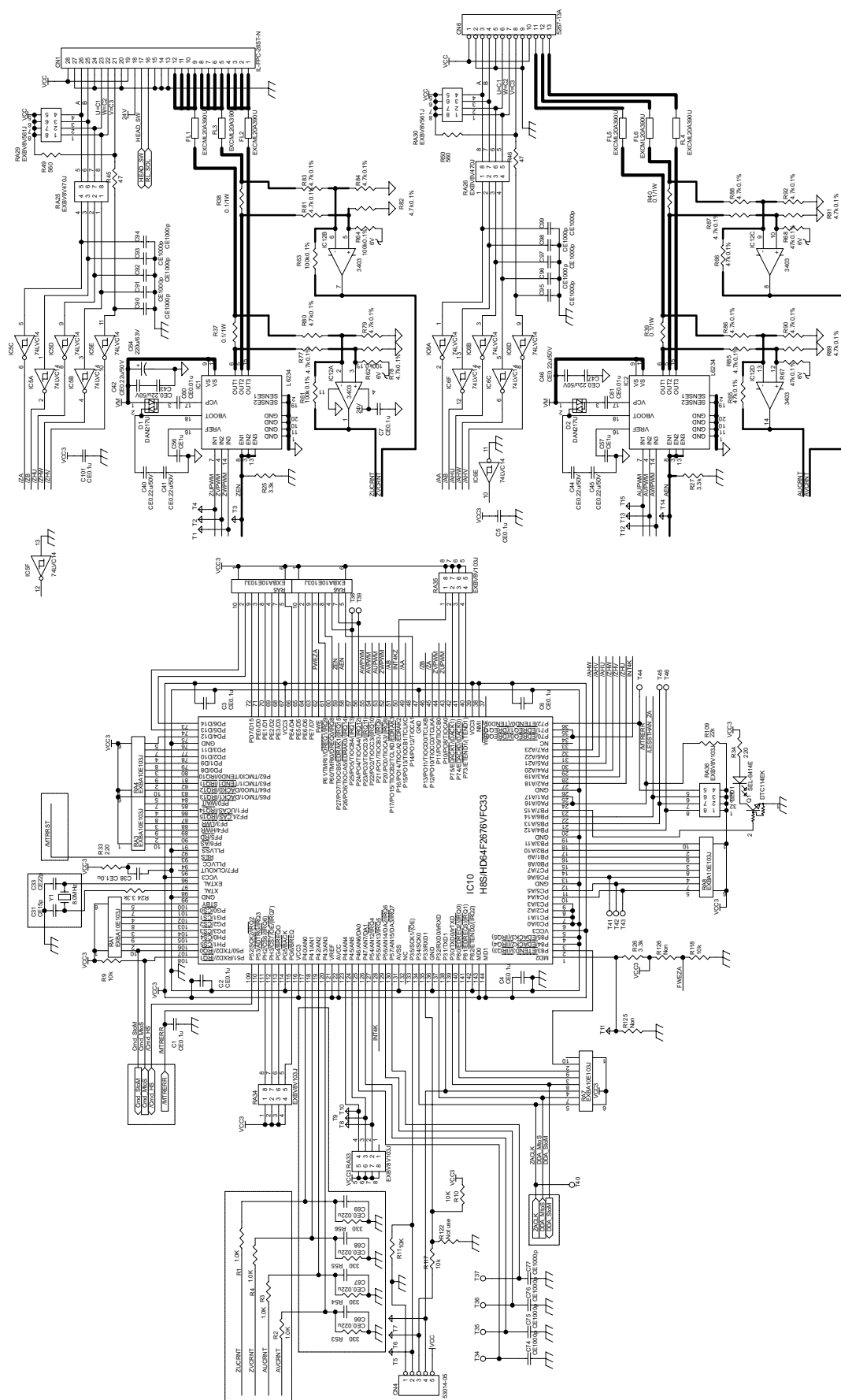


Main Board_Arrangement Diagram / soldering side



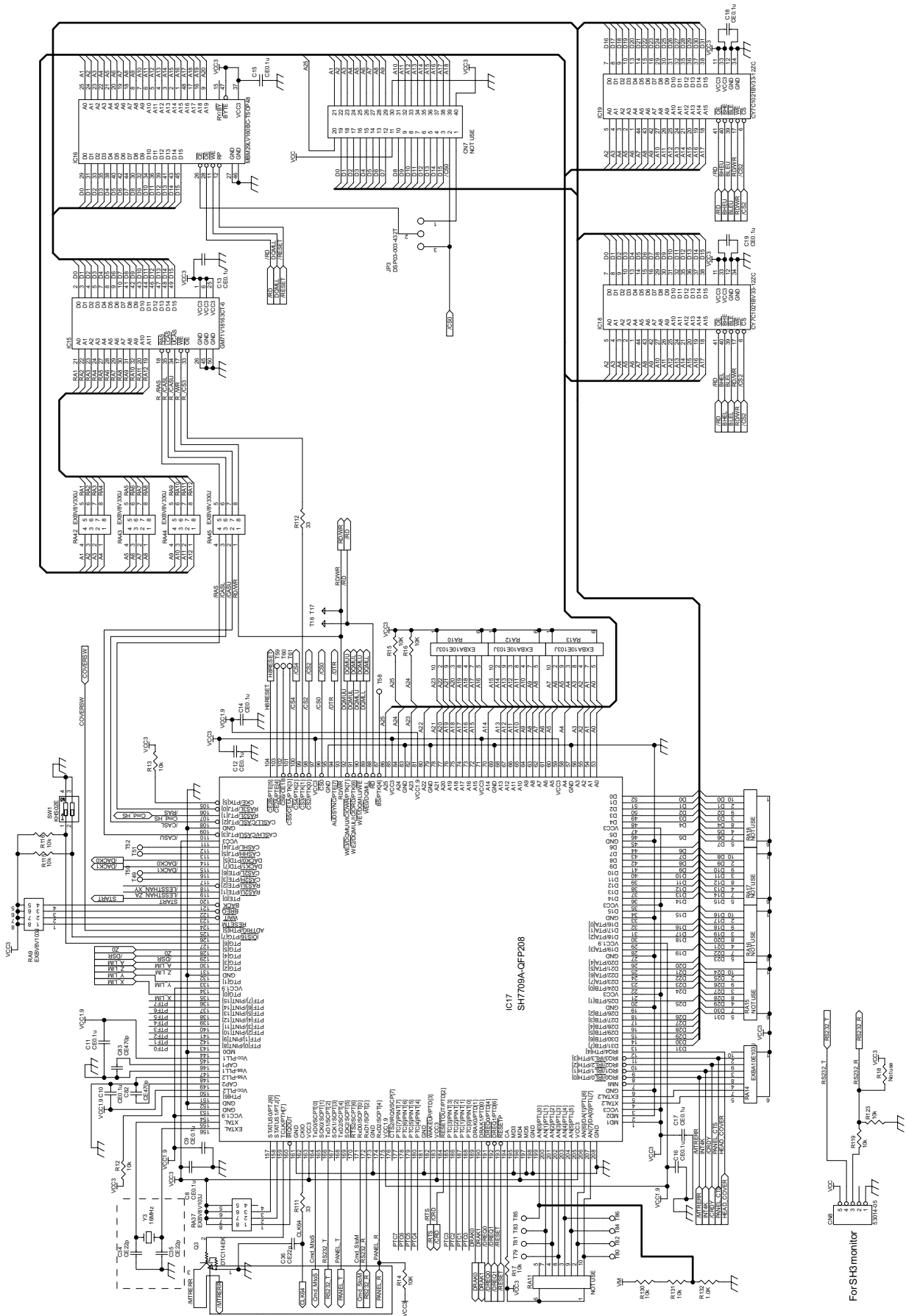


Main Board_1/4 Circuit Diagram



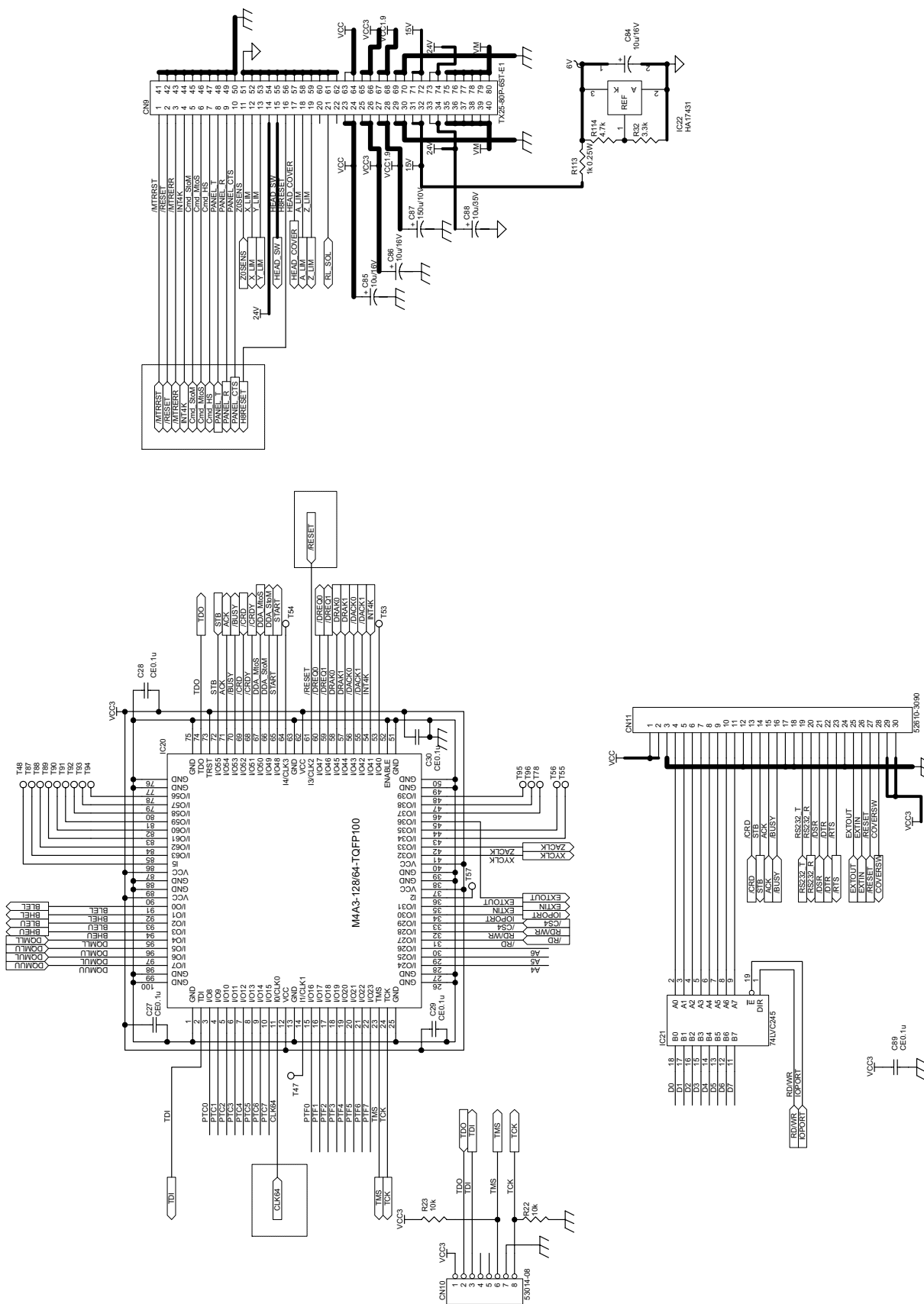
Main Board_2/4 Circuit Diagram

2



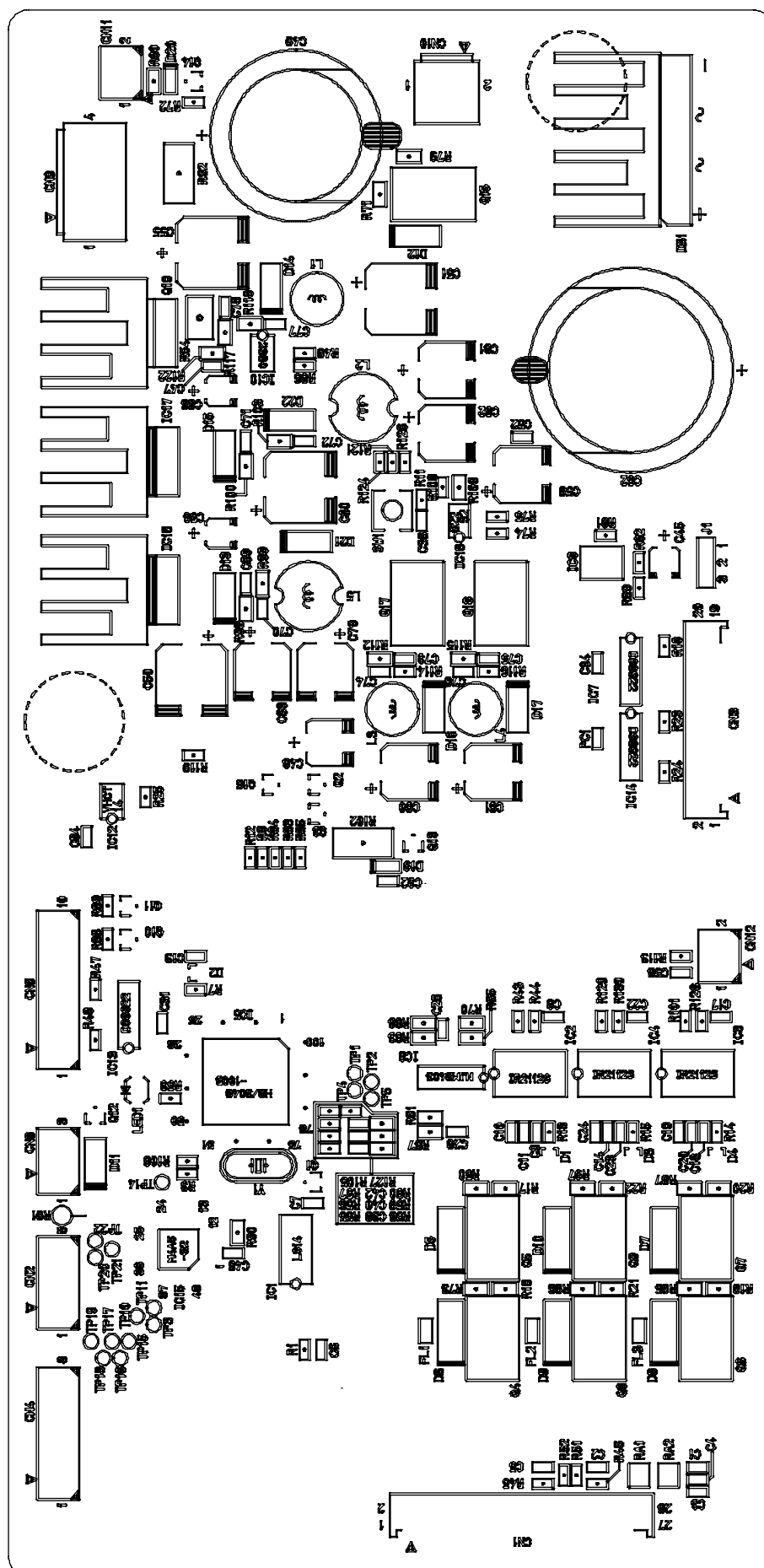
Main Board_4/4 Circuit Diagram

2



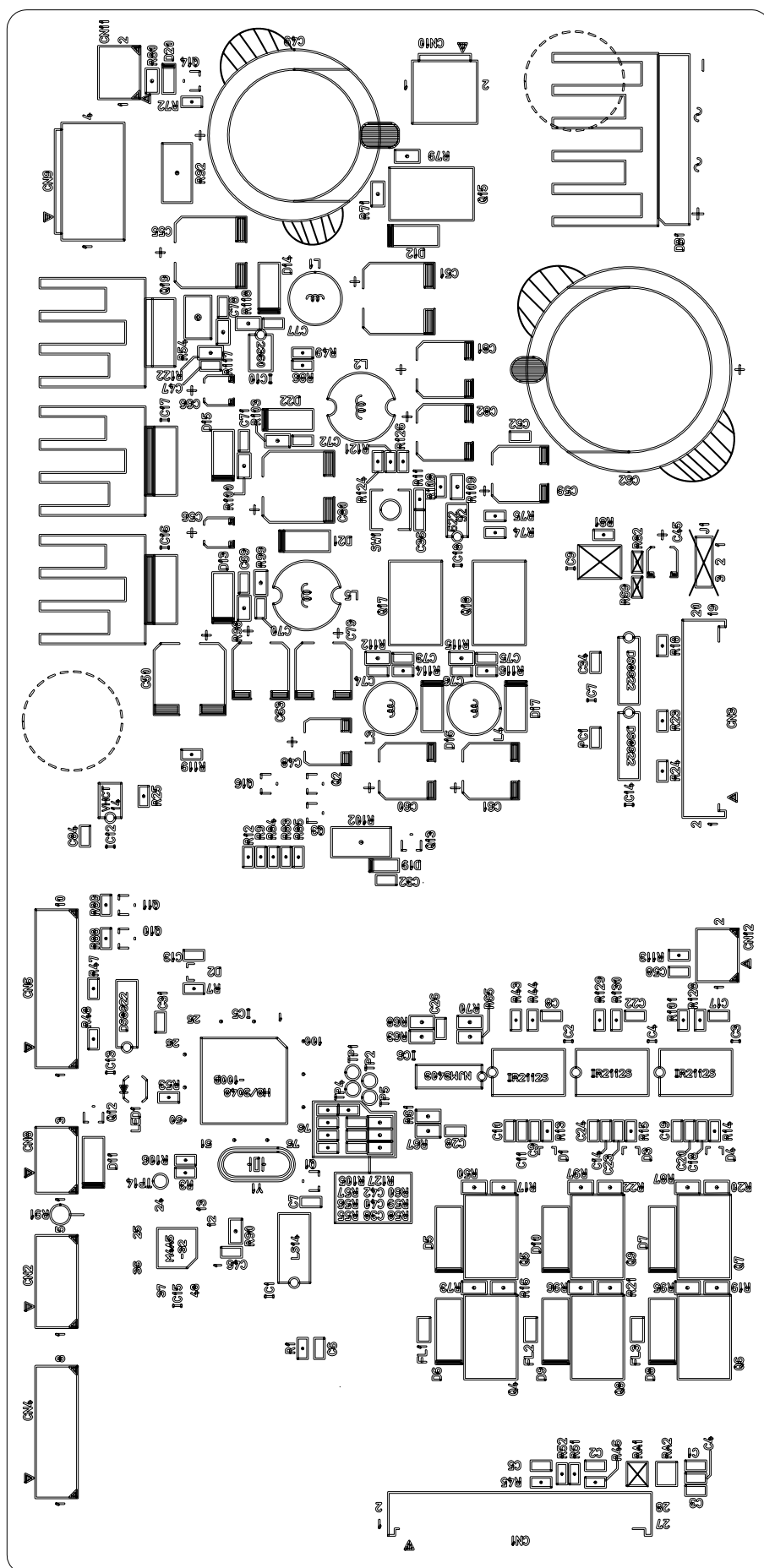
2-3 SPINDLE BOARD ASS'Y

Spindle Board_Arrangement Diagram / component side

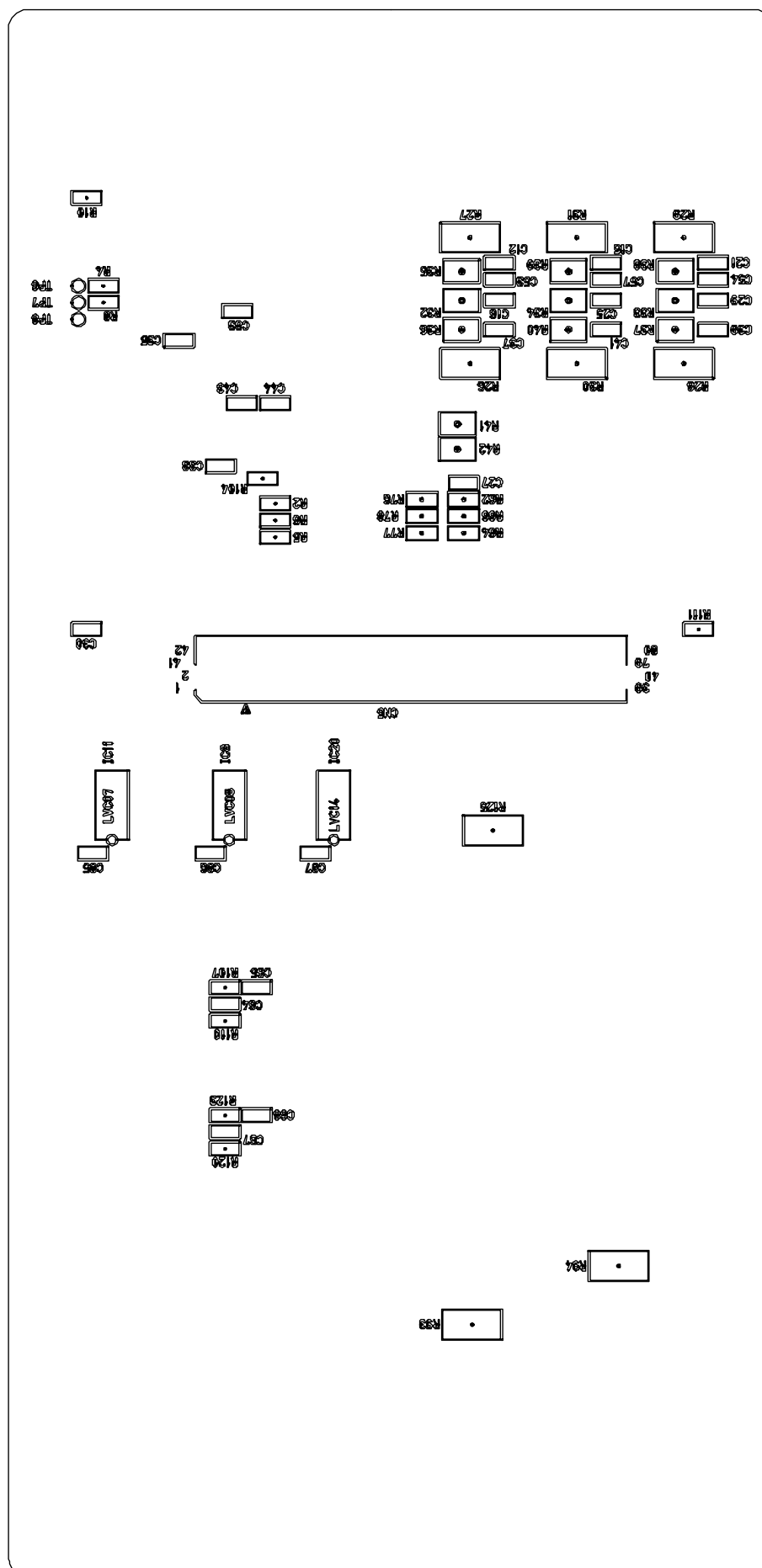


Spindle Board_Component Diagram / component side

2

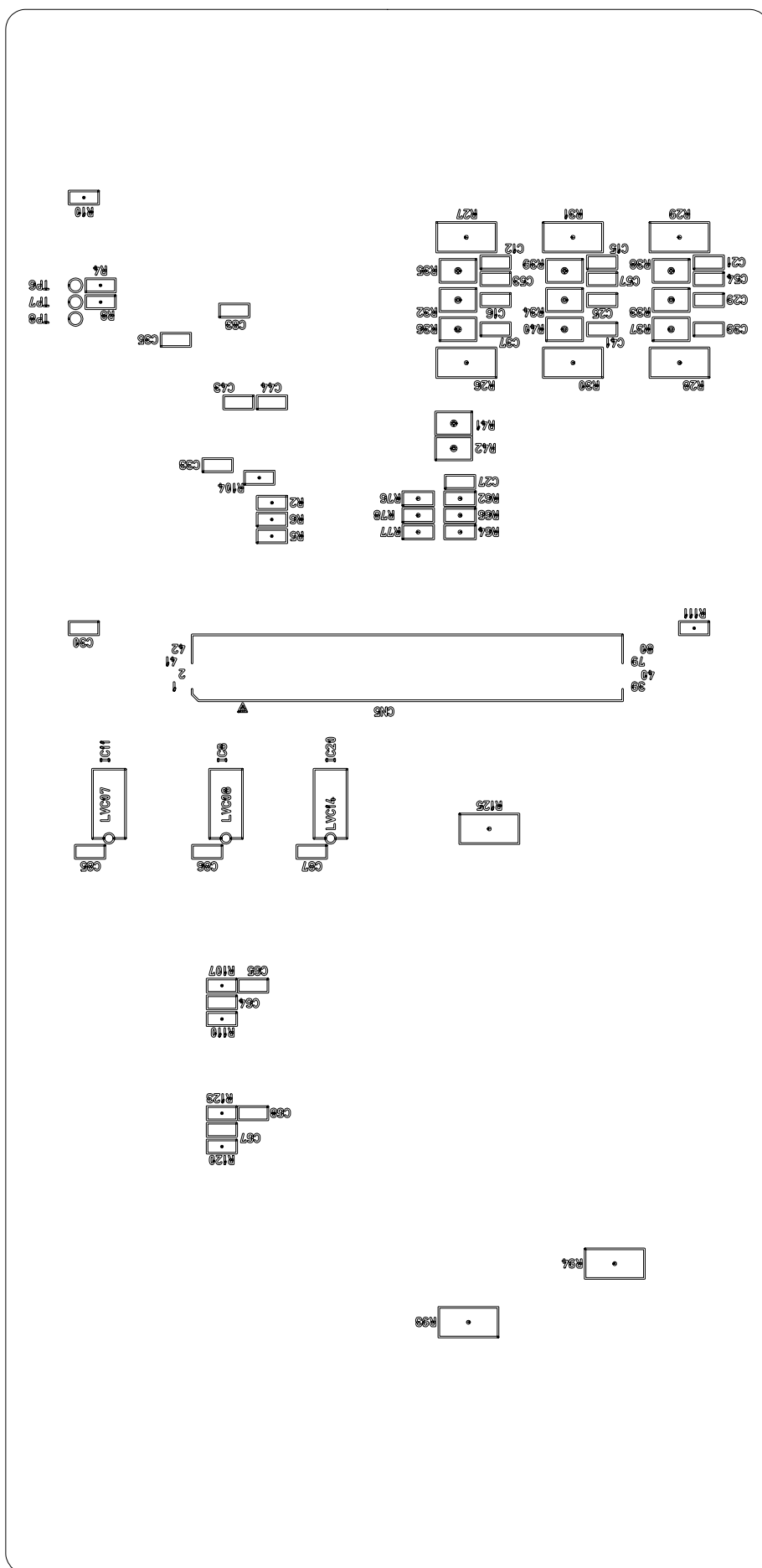


Spindle Board_Arrangement Diagram / soldering side



Spindle Board_Component Diagram / soldering side

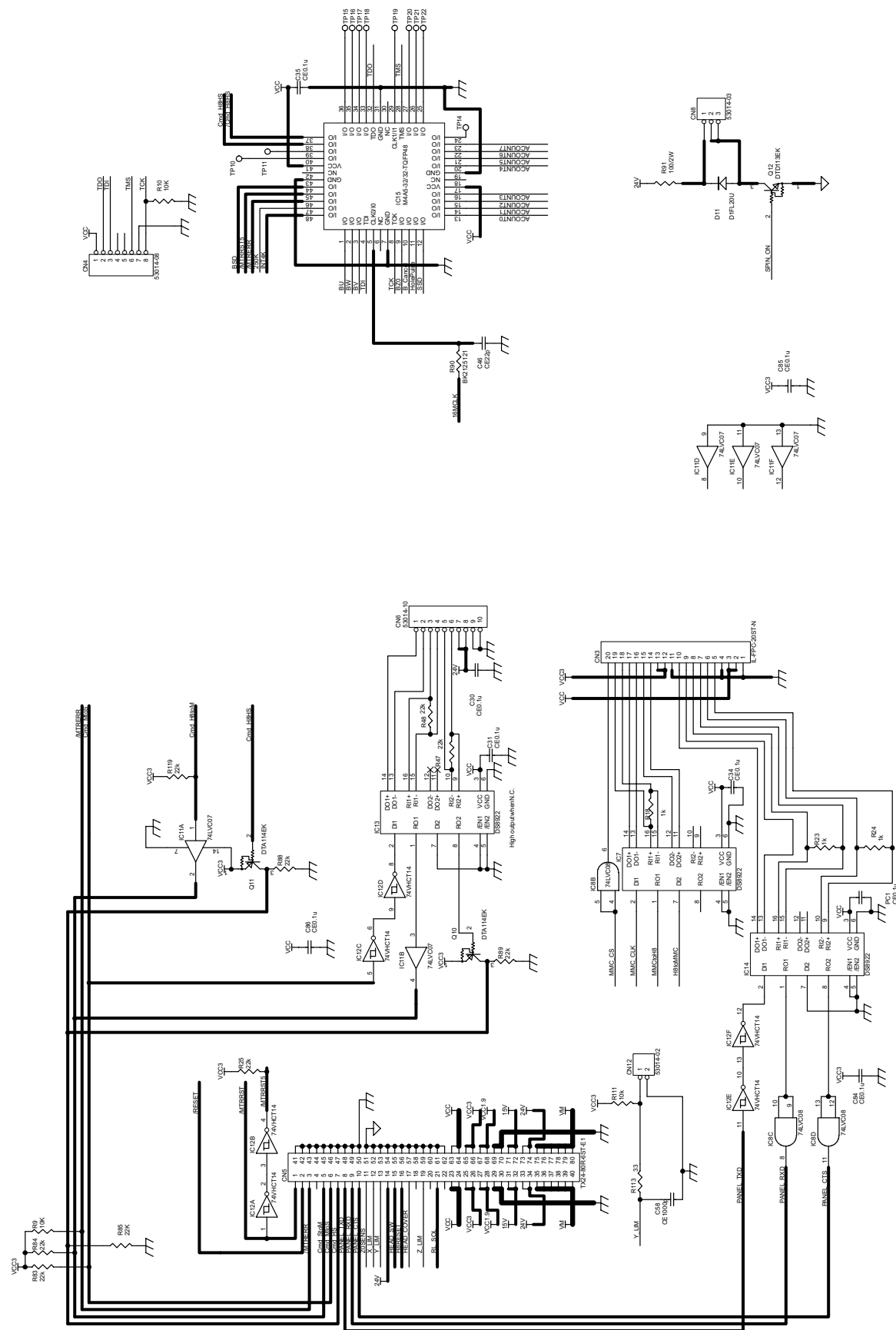
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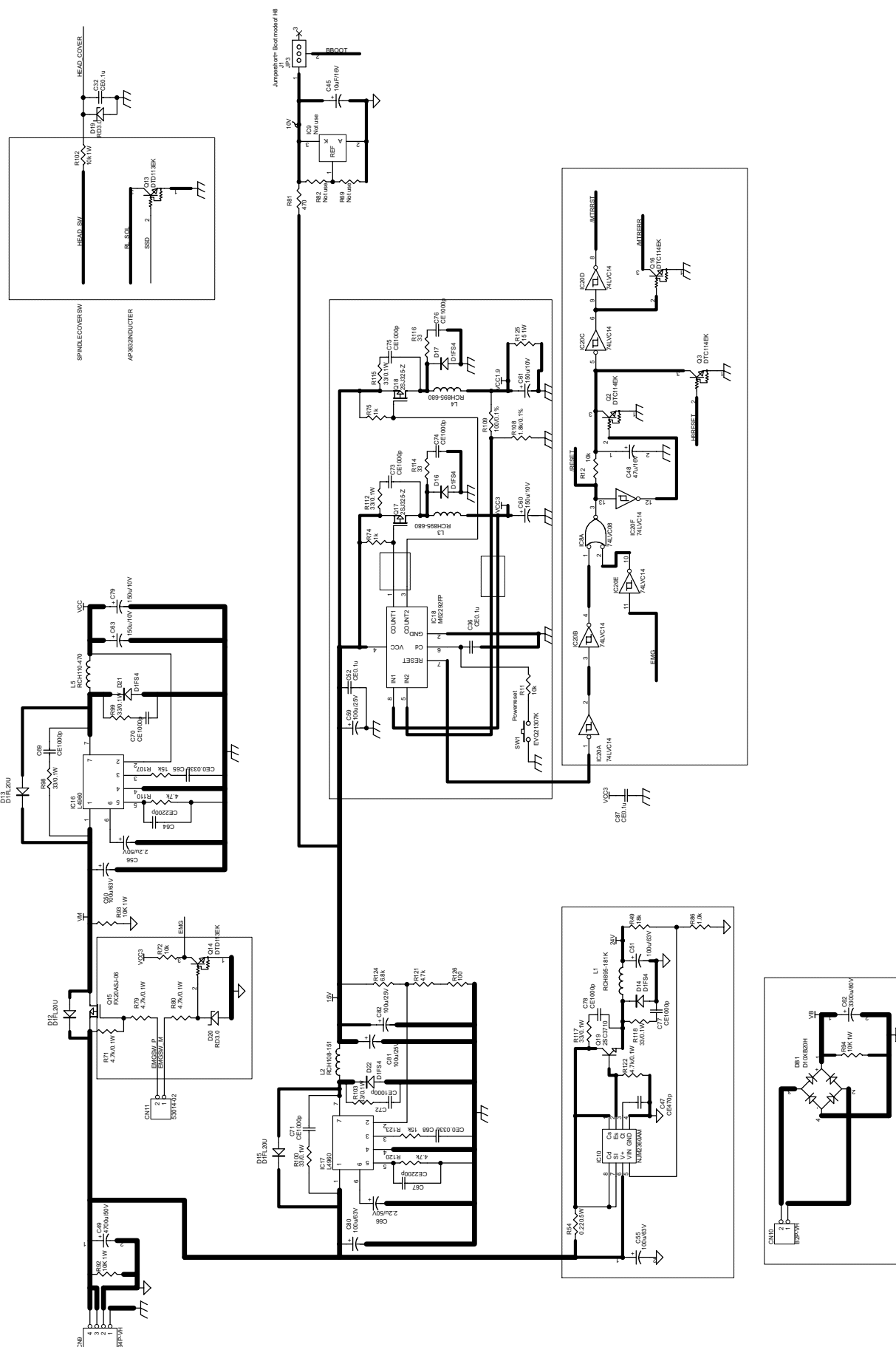
[illegible]

Spindle Board_2/3 Circuit Diagram

2



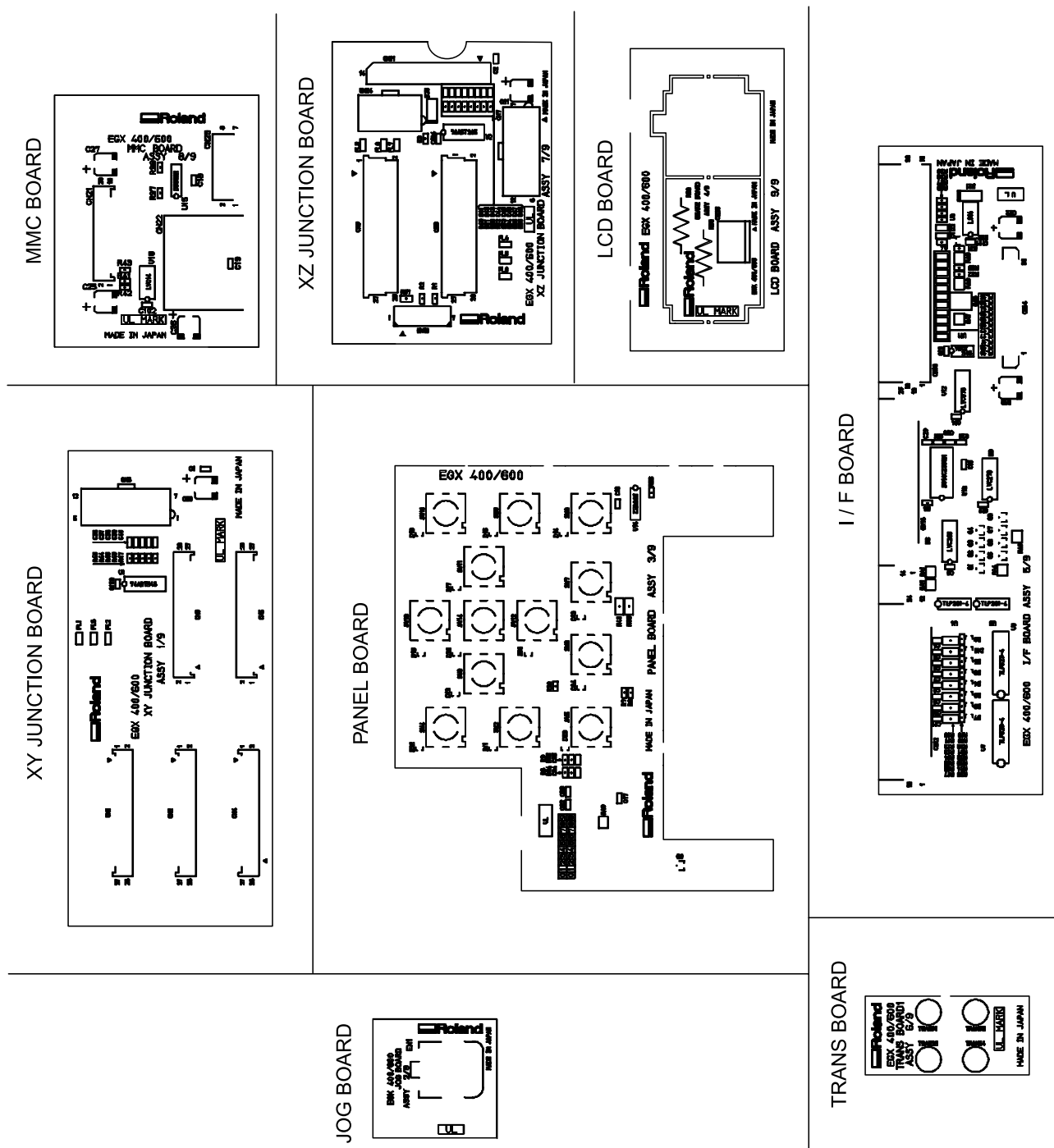
Spindle Board_3/3 Circuit Diagram



2-4 OTHER CIRCUIT BOARD

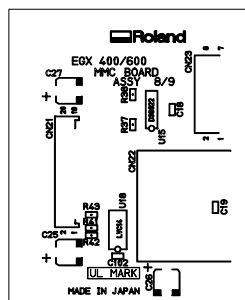
Other Circuit Board_Arrangement Diagram / component side

2

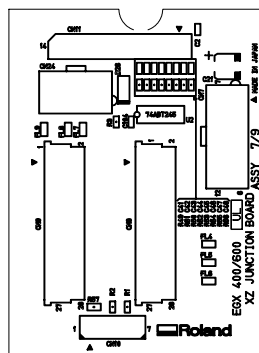


Other Circuit Board_Component Diagram / component side

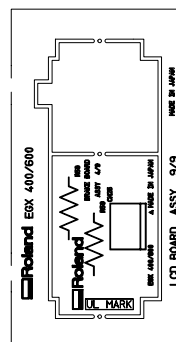
MMC BOARD



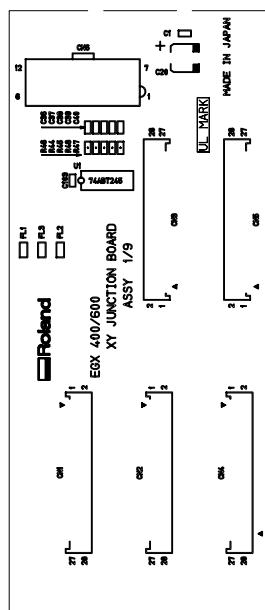
XZ JUNCTION BOARD



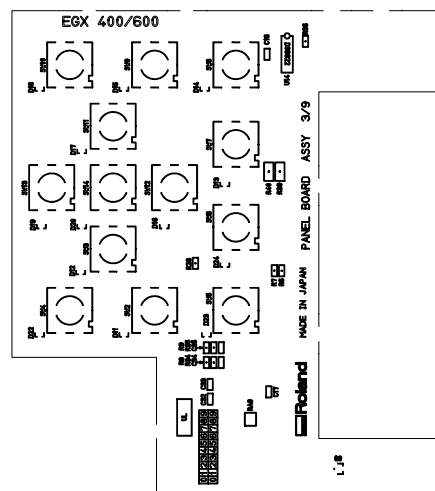
LCD BOARD



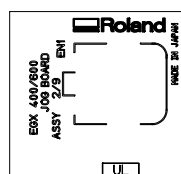
XY JUNCTION BOARD



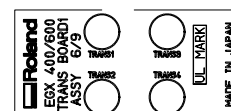
PANEL BOARD



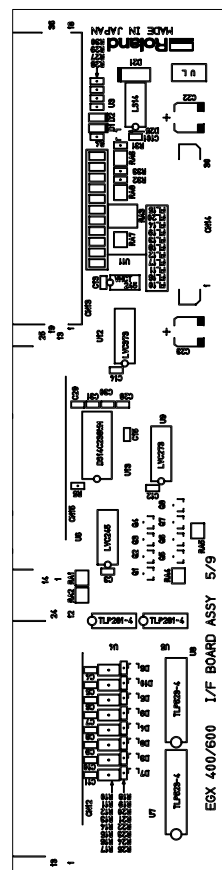
JOG BOARD



TRANS BOARD

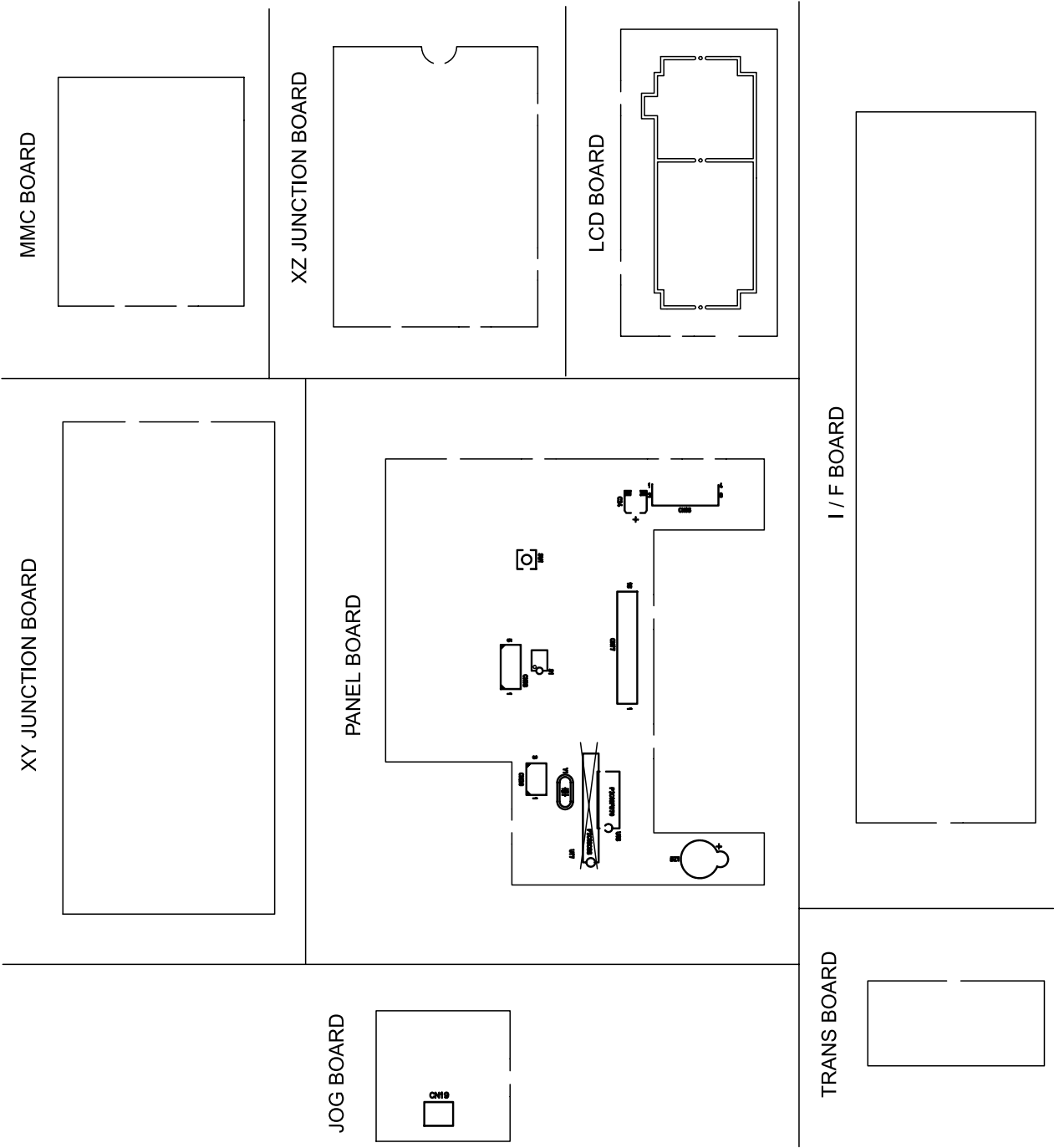


I / F BOARD

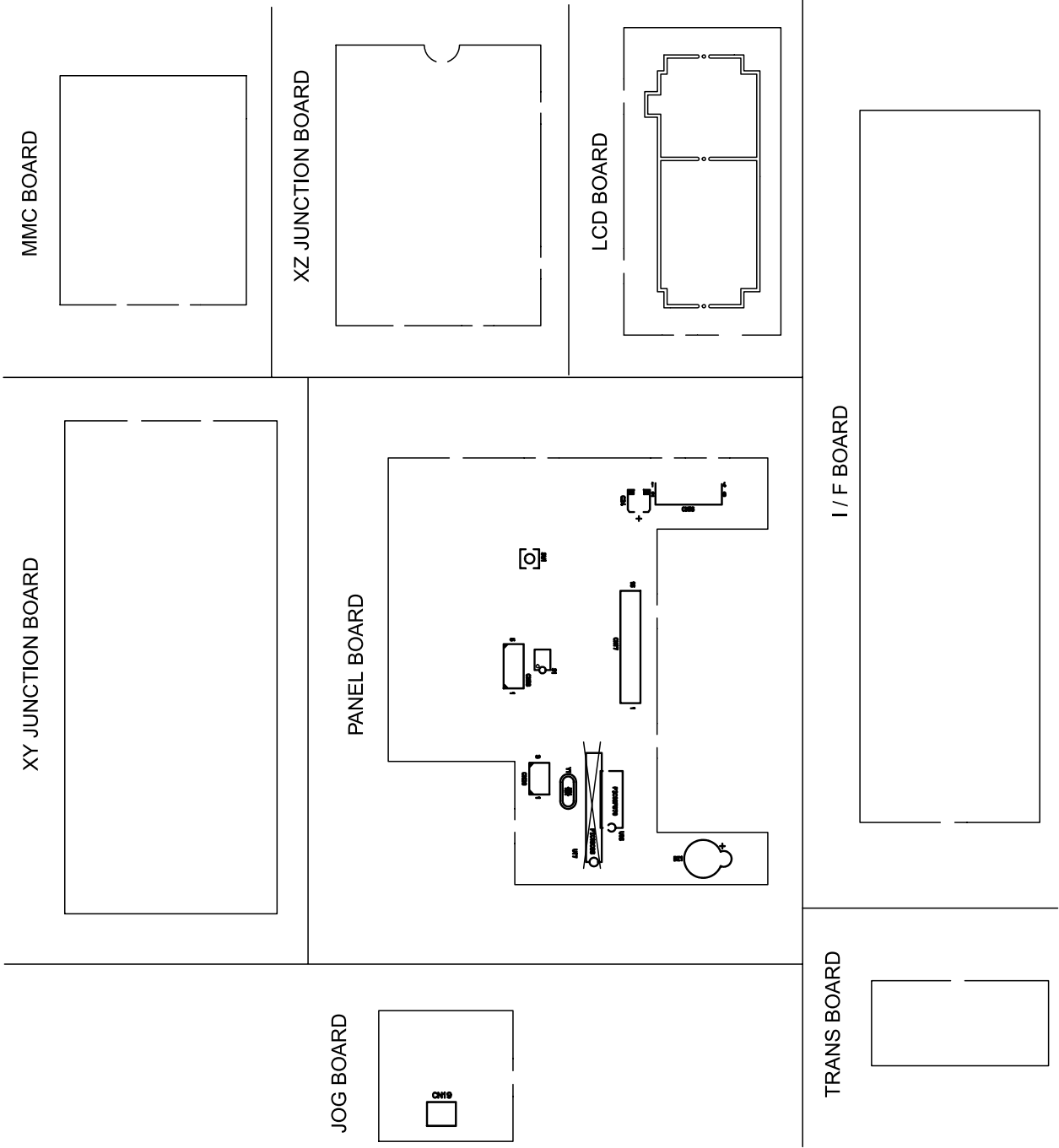


Other Circuit Board_Arrangement Diagram / soldering side

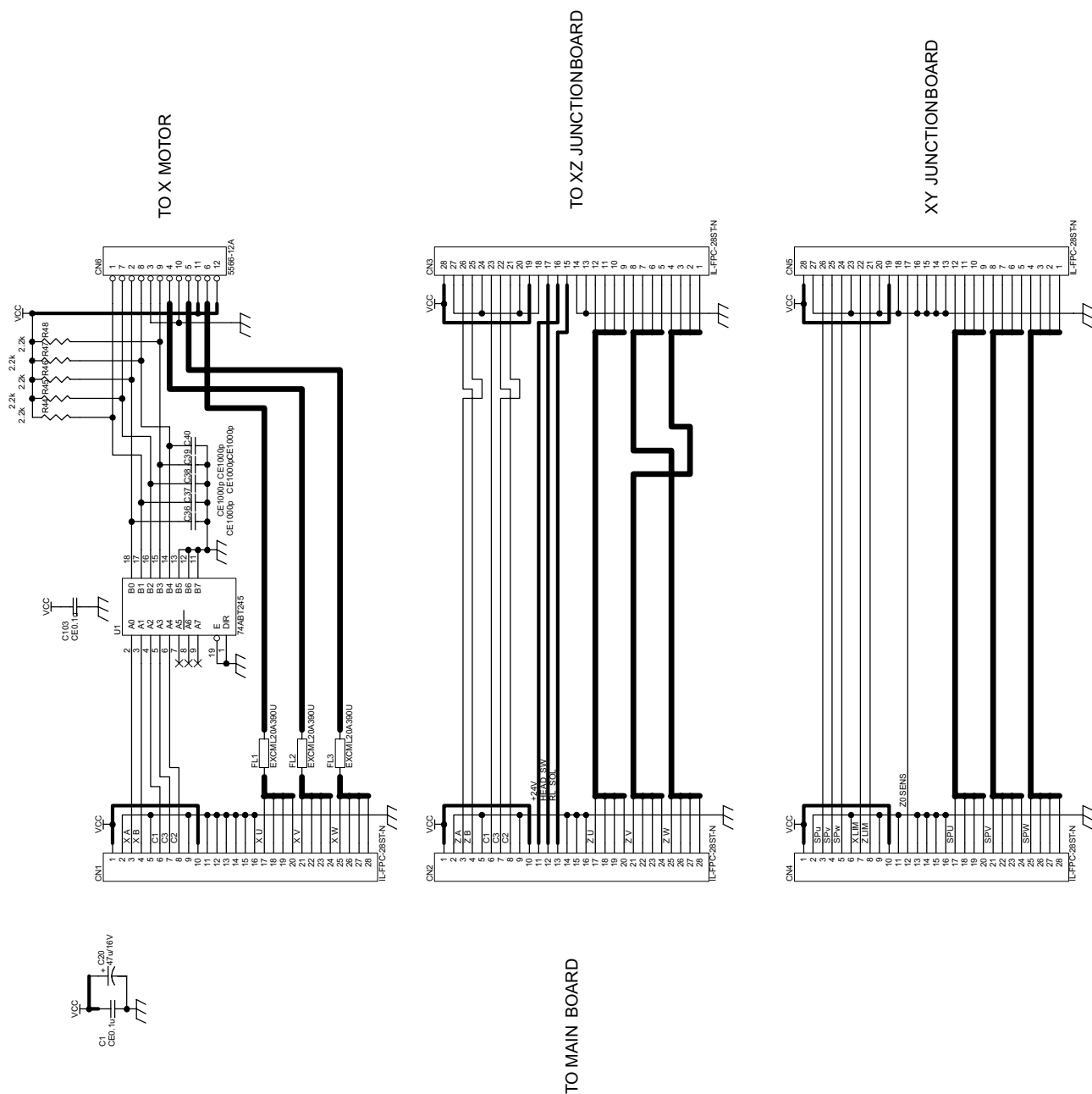
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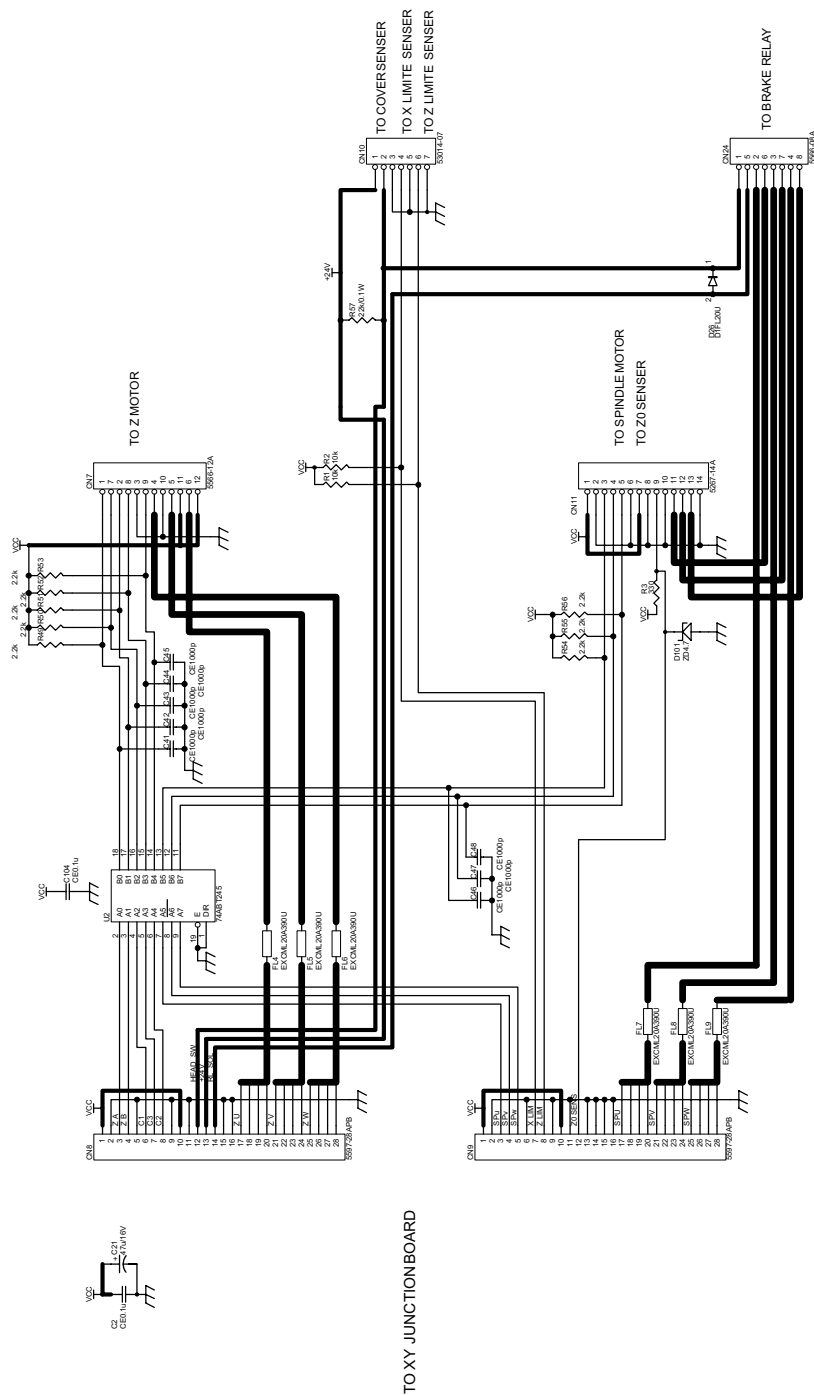
Other Circuit Board_Component Diagram / soldering side



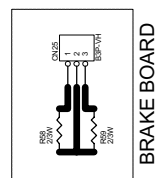
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Other Circuit Board_2/4 Circuit Diagram

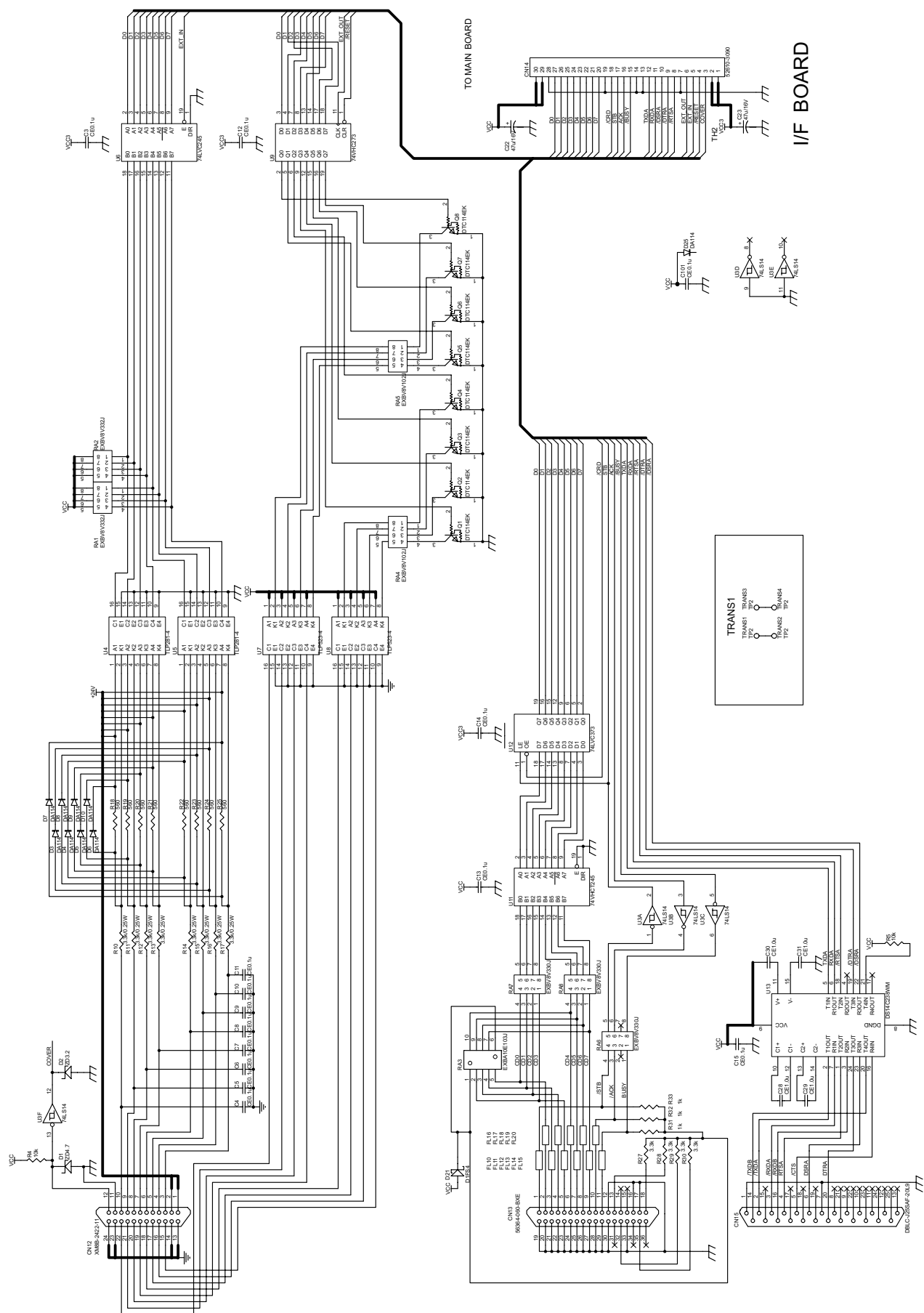


XZ JUNCTION BOARD

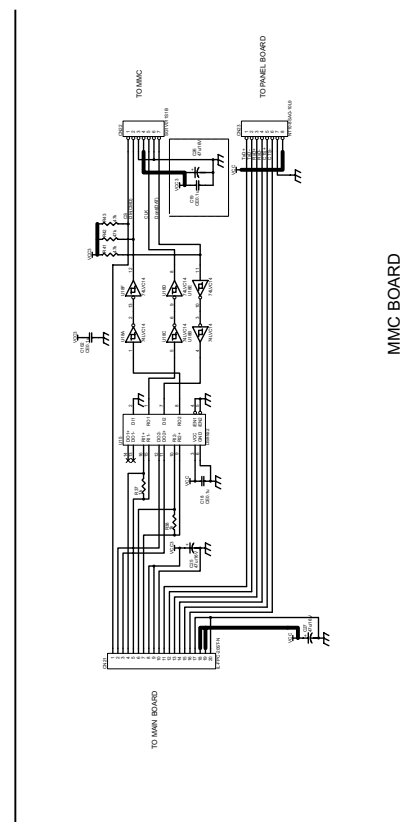
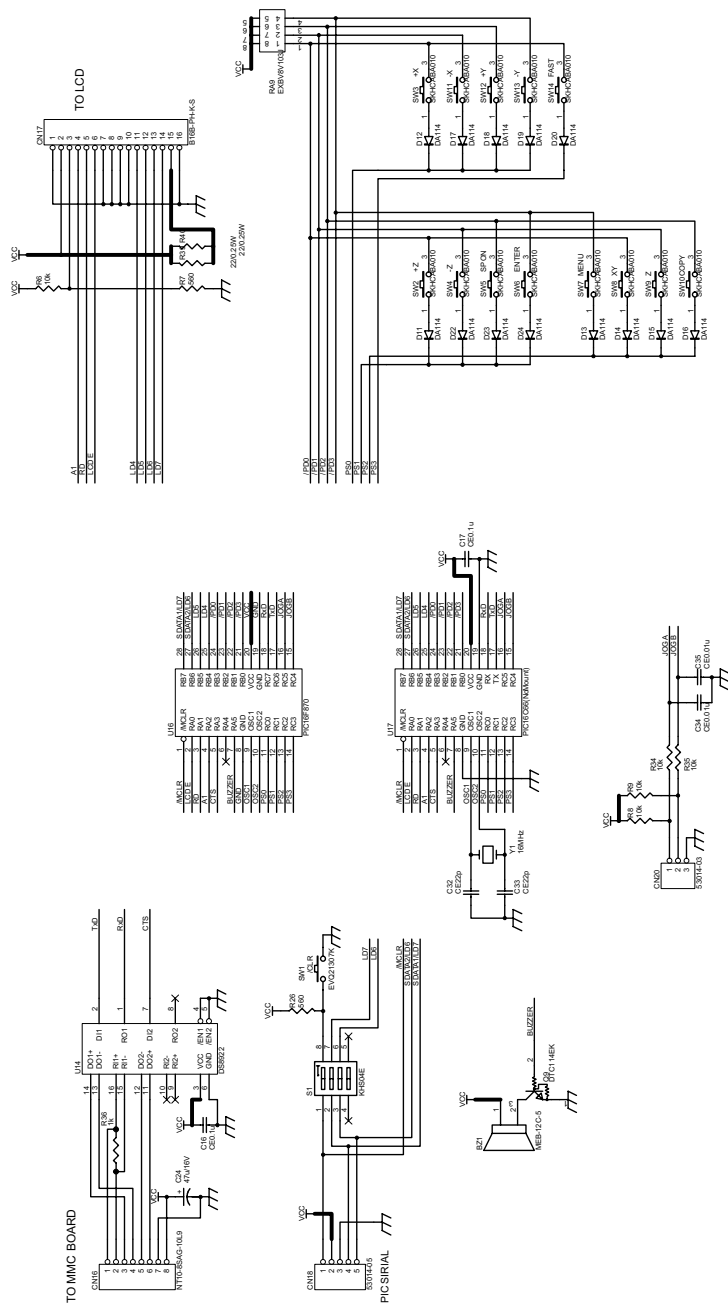


BRAKE BOARD

32



Other Circuit Board_4/4 Circuit Diagram



MMC BOARD

2

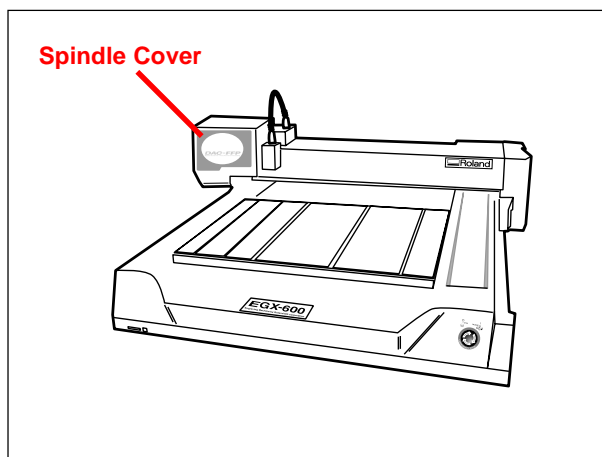
3 Replacement of Main Parts

Following table describes the necessary adjustment after the replacement of each parts.

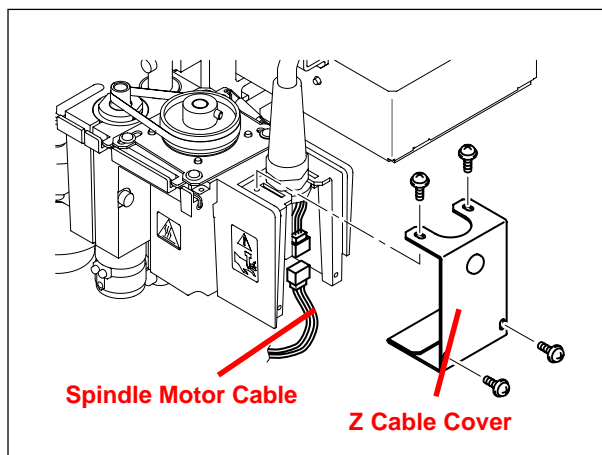
Replacement Parts	Necessary Adjustment
X MOTOR	1. X Axis Load Check
Y MOTOR	1. Y Axis Load Check
Z MOTOR	1. Z Axis Load Check
X AXIS LM GUIDE	1. X Axis Load Check
Y AXIS LM GUIDE	1. Right Angle Adjustment of X Axis 2. Y Axis Load Check
X BELT	1. X Belt Tension Adjustment 2. X Axis Load Check
Y BELT	1. Right Angle Adjustment of X Axis 2. Y Belt Tension Adjustment 3. Y Axis Load Check

3-1 Spindle Moter_Replacement (Referential Time : 20 minutes)

- 1** Remove the Spindle Cover.



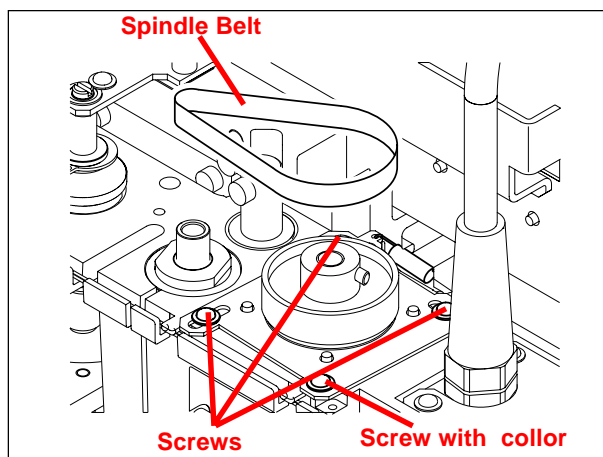
- 2** Remove the Z Cable Cover, cut off the INSULOCK TIE and disconnect the Spindle Motor Cable.



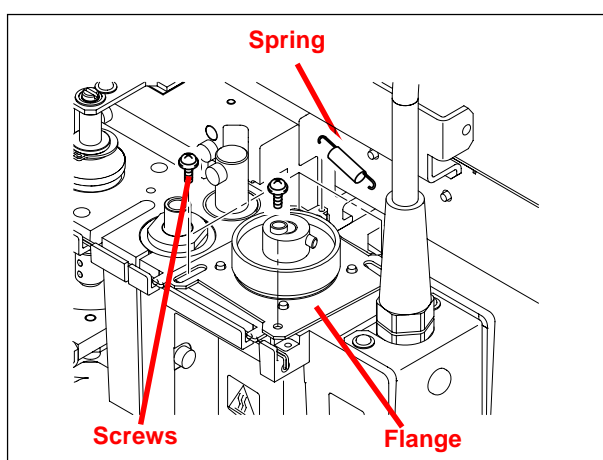
- 3** Loosen the screws fixing the Flange and remove the Spindle Belt.



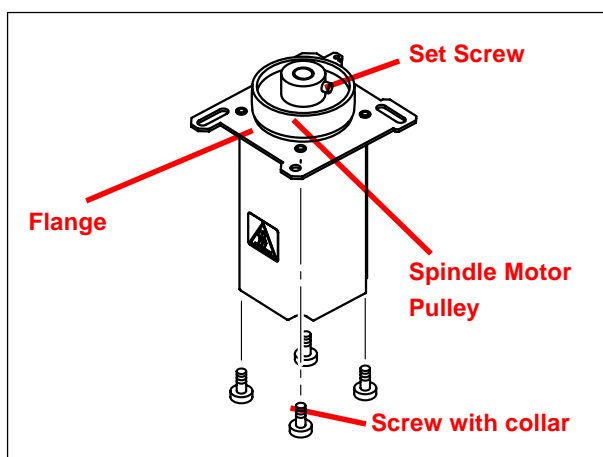
There is the collar on the lower right side of the flange. Be careful not to lose it.



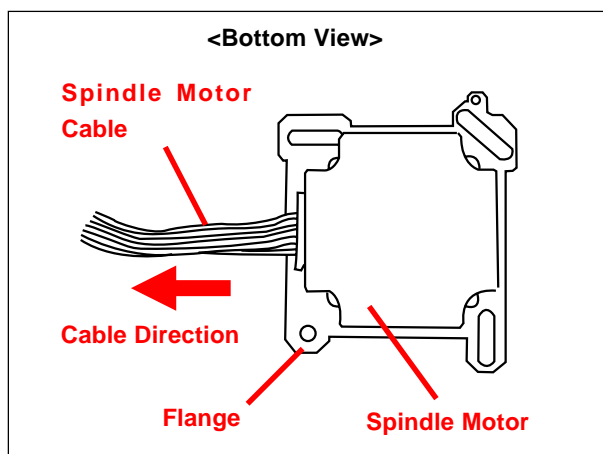
- 4** Remove the Spring and the Screws, and then remove Spindle Motor with the Flange.



- 5** Loosen the Set screw and remove the Spindle Motor Pulley. Remove the Spindle Motor from the Flange and change it to the new one.



When fixing the Motor Flange, be careful with the direction of the Spindle Motor and the Flange. Fix the Flange to the Spindle Motor following to the figure.



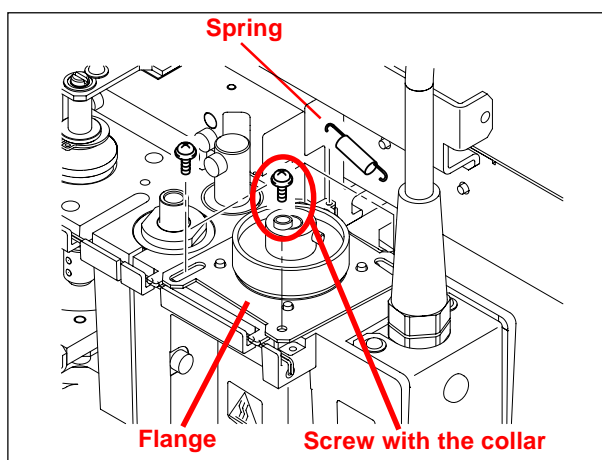
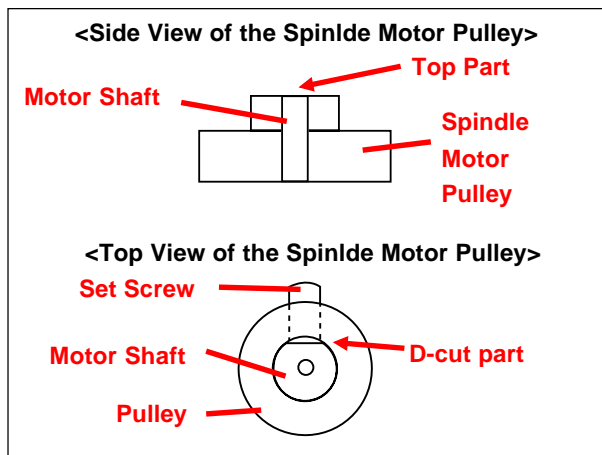
- 6** Fix the Spindle Motor Pulley to the Spindle Motor with the Set Screw.



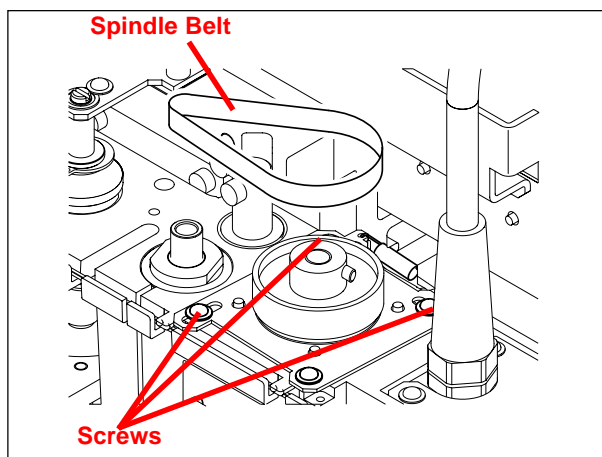
When fixing the Spindle Motor Pulley, it is necessary to align the top end of the Spindle Motor Pulley and the top end of the Motor Shaft. It is necessary to fix the Set Screw against the D-Cut part of the Motor Shaft.

3

- 7** Tighten up the screw with the collar and tighten the other screws temporarily to the Flange and put the Spring.



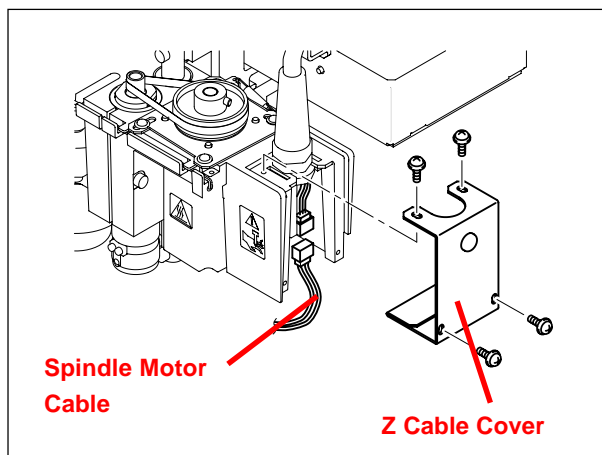
- 8** Attach the Spindle Belt and tighten up the screws of the Flange.



- 9** Connect the Spindle Motor Cable and pack it with INSULOCK TIE, and fix the Z Cable Cover.

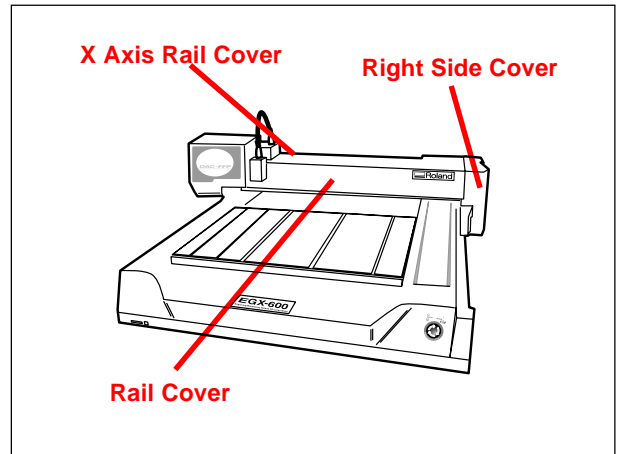


Please be careful not to pinch the Cable by the Z Cable Cover.



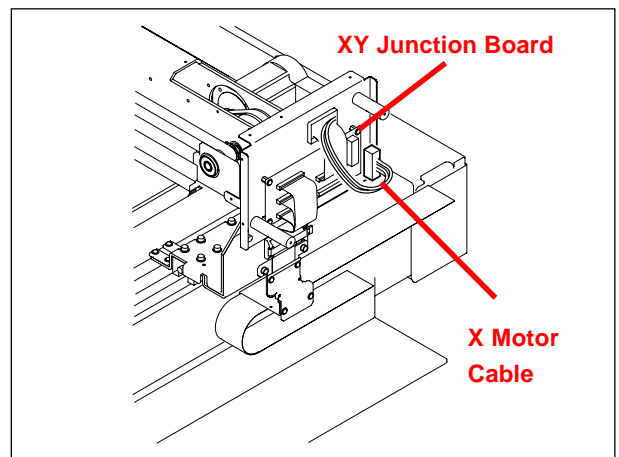
3-2 X Axis Motor_Replacement (Referential Time : 20 minutes)

- 1 Remove the X Axis Rail Cover, Rail Cover and Right Side Cover.



3

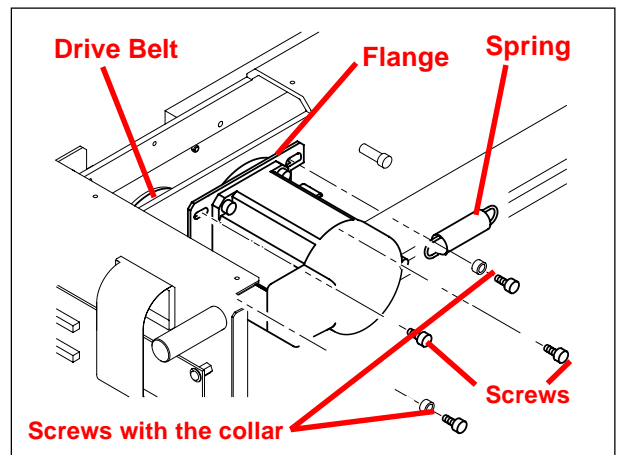
- 2 Move the Head Carriage to the left end.
Remove the X Motor Cable from the XY Junction Board.



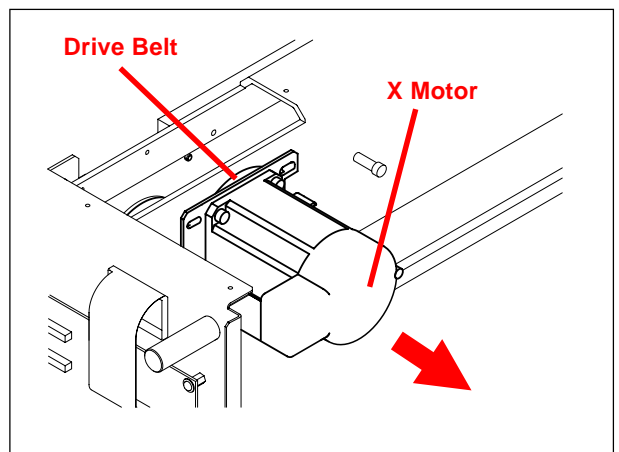
- 3 Remove the Spring and after that remove the screws fixing the Flange.



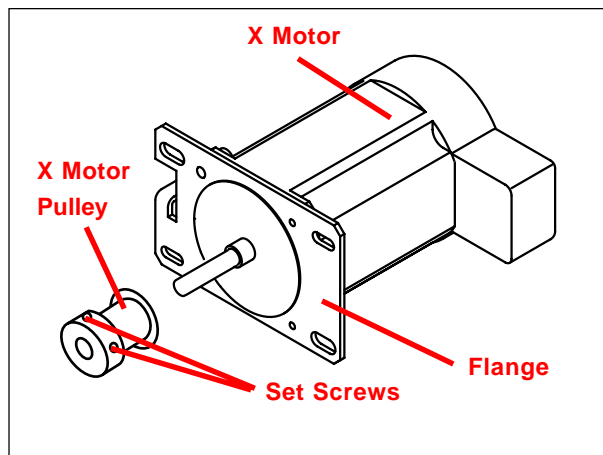
There are the collars on the lower left and upper right side of the screws. Be careful not to lose them.



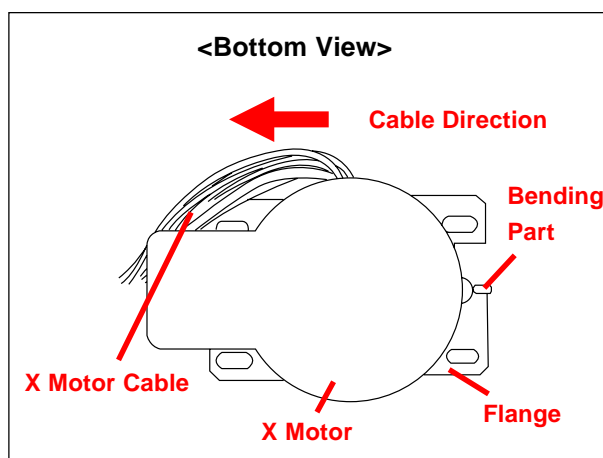
- 4 Remove the X Motor together with the Flange from the Drive Belt.



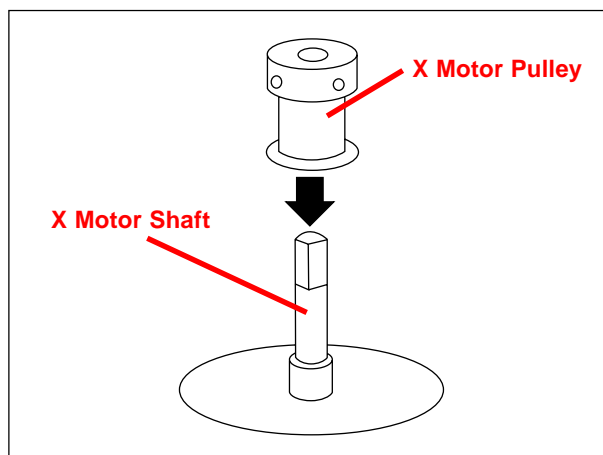
- 5** Loosen the Set Screws and remove the X Motor Pulley from the X Motor. Then, remove the X Motor from the Flange and change it to the new one.



When fixing the Motor Flange, be careful with the direction of the X Motor and the Flange. Fix the Flange to the X Motor while taking care with the cable direction and the bending part of the Flange as the figure.



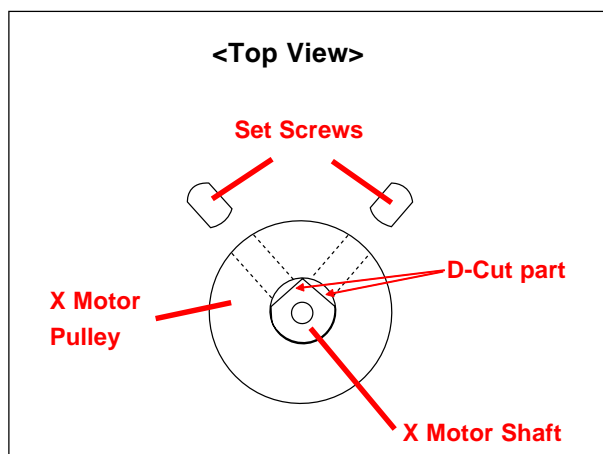
It is necessary to press the X Motor Pulley downward against the X Motor Shaft as the figure.



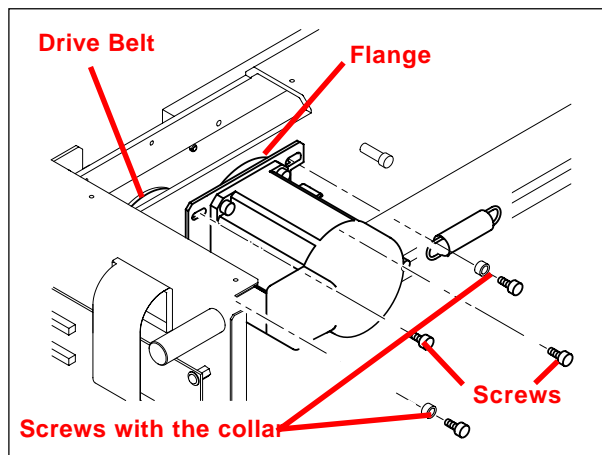
- 6** Fix the X Motor Pulley to the X Motor with the Set Screw.



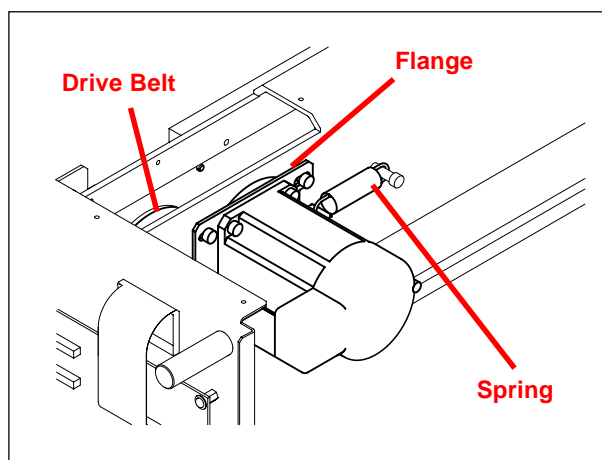
It is necessary to fix the Set Screw against the D-Cut part of the X Motor Shaft.



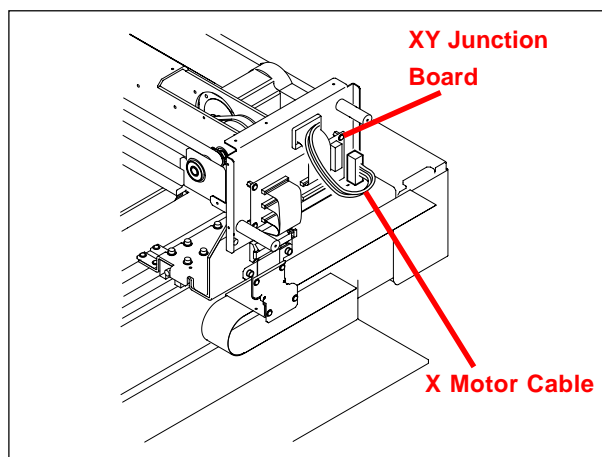
- 7** Put through the X Motor Pulley to the Drive Belt.
Then, tighten up the Screws with the collar and the other
Screws temporarily to the Motor Flange.



- 8** Attach the Spring and tighten up the screws.

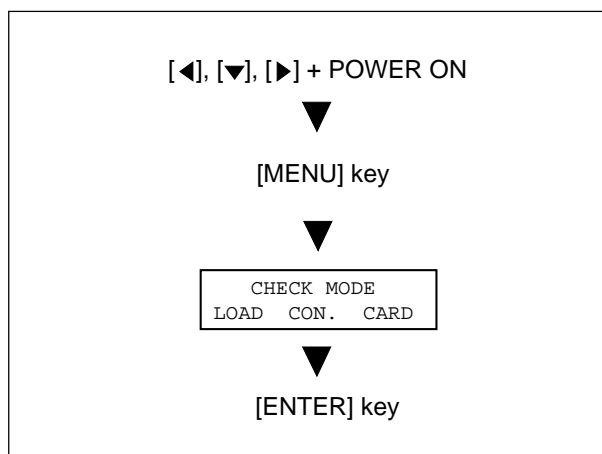


- 9** Connect the X Motor Cable to the XY Junction Board.

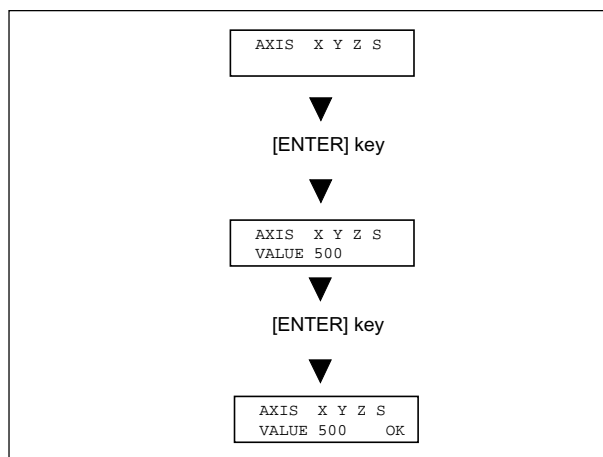


<X Axis Load Check>

- 10** Turn on the Power while pressing the [◀], [▼], [▶]
keys to enter the Service Mode.
Select the [LOAD] menu by pressing the [MENU] key and
press [ENTER] key.



- 11** Select the [AXIS X] in the [LOAD] menu and press [ENTER] key. Then, Carriage moves to the Limit Position.
Enter the value 500 and press the [ENTER] key.

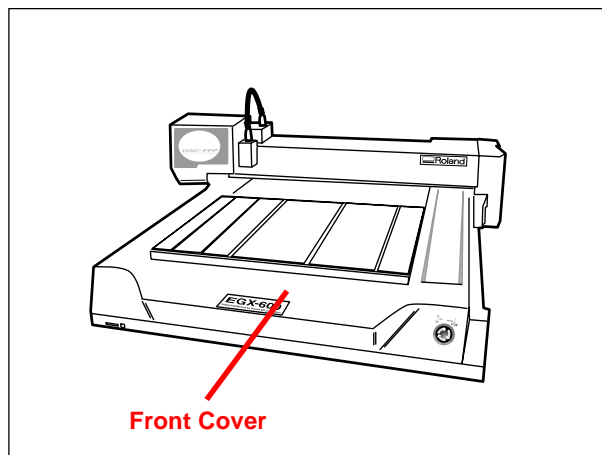


3

- 12** After setting the value, the load check starts.
The Carriage moves in the X direction to check the load.

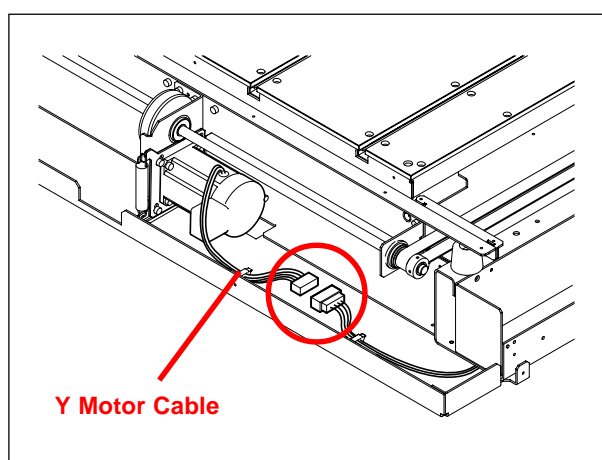
3-3 Y Axis Motor _Repalcement (Referential Time : 20 minutes)

- 1** Remove the Front Cover.

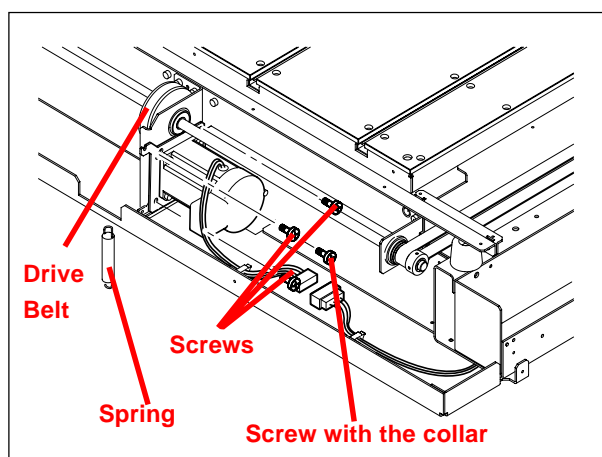


3

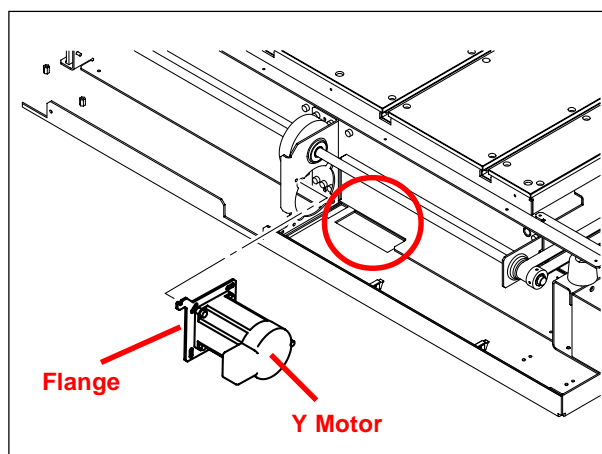
- 2** Disconnect the Y Motor Cable.



- 3** Remove the Spring and the screws fixing the Flange. Then, remove the Y Motor together with the Flange from the Drive Belt.

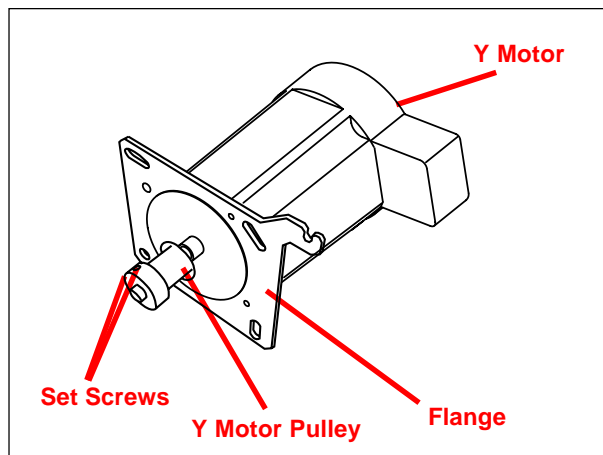


There is the collar on the lower right side of the flange. Be careful not to lose it. When it is difficult to remove the lower right screw, you can remove it from the base of the machine.



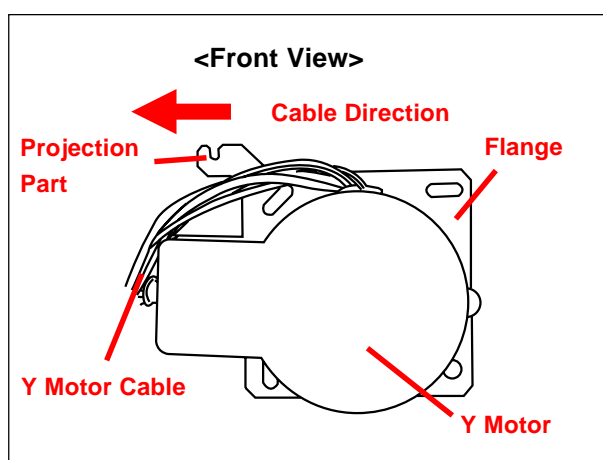
- 4** Loosen the Set Screw and remove Y Motor Pulley from the Y Motor.

Remove the Y Motor from the Flange and change it to the new one.



When fixing the Flange, be careful with the direction of the Motor and the Flange.

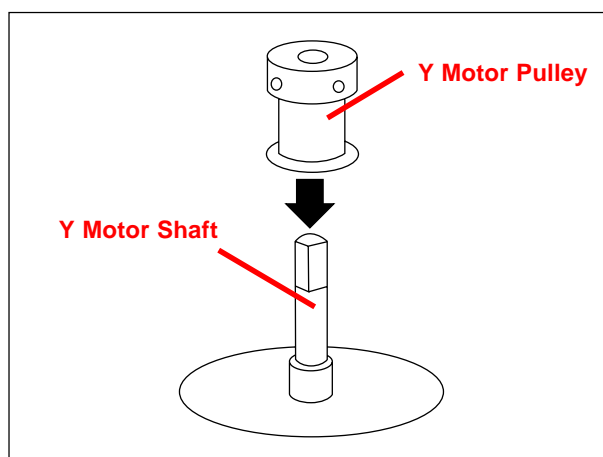
Fix the Flange to the Y Motor while taking care with the cable direction and the projection part of the Flange as the figure.



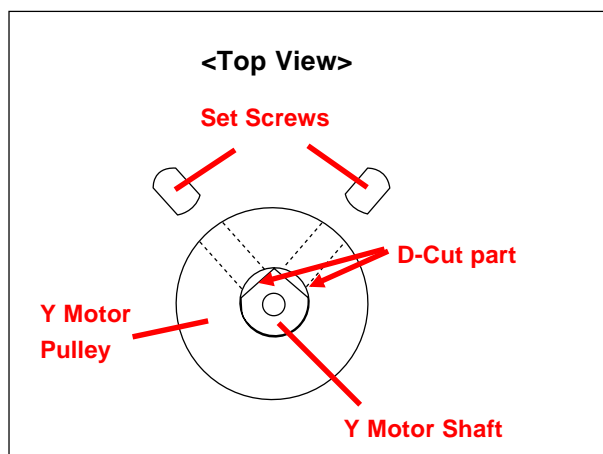
- 5** Fix the Y Motor Pulley to the Y Motor with the Set Screws.



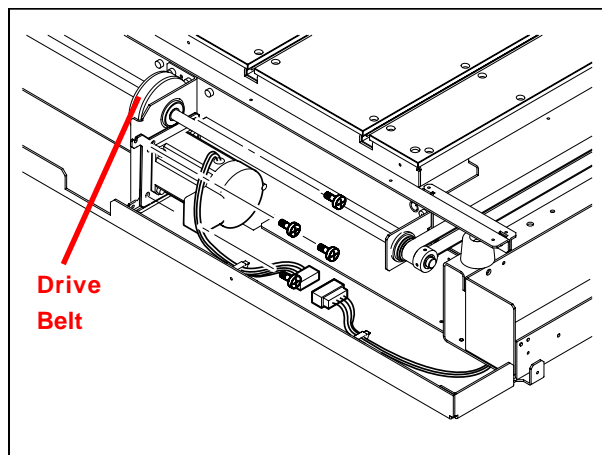
It is necessary to press the Y Motor Pulley downward against the Y Motor Shaft as the figure.



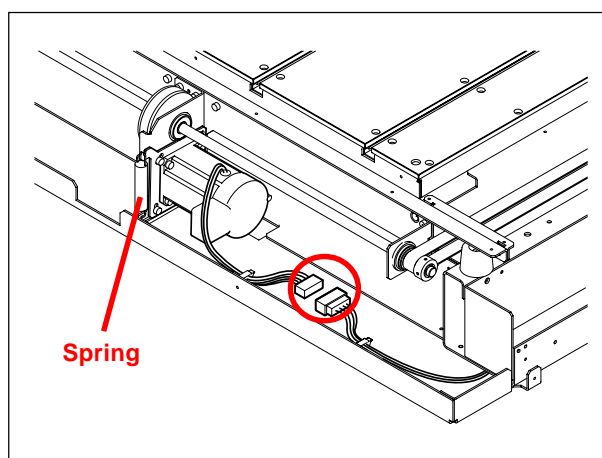
It is necessary to fix the Set Screws against the D-Cut part of the Y Motor Shaft.



- 6** Put through the Y Motor Pulley to the Drive Belt and tighten the Flange with the Motor temporarily.

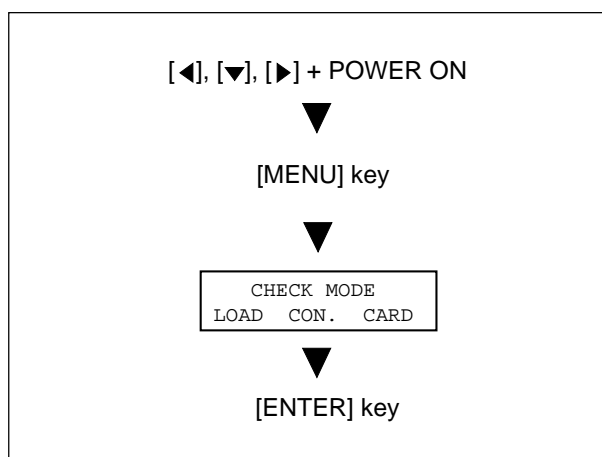


- 7** Attach the Spring and tighten up the screws. Then, connect the Y Motor Cable.

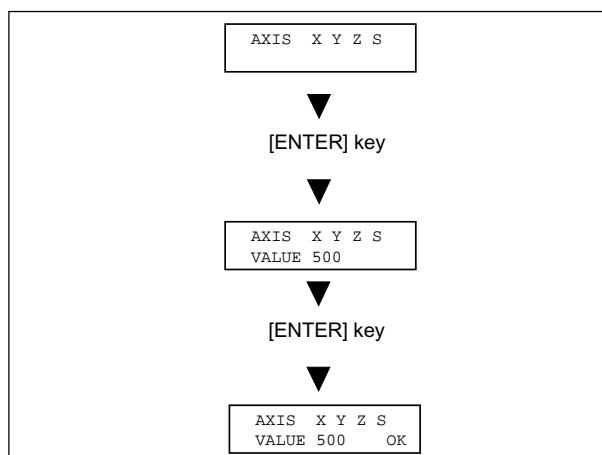


<Y Axis Load Check>

- 8** Turn on the Power while pressing the [◀], [▼], [▶] keys too enter the Service Mode. Select the [LOAD] menu by pressing the [MENU] key and press [ENTER] key.



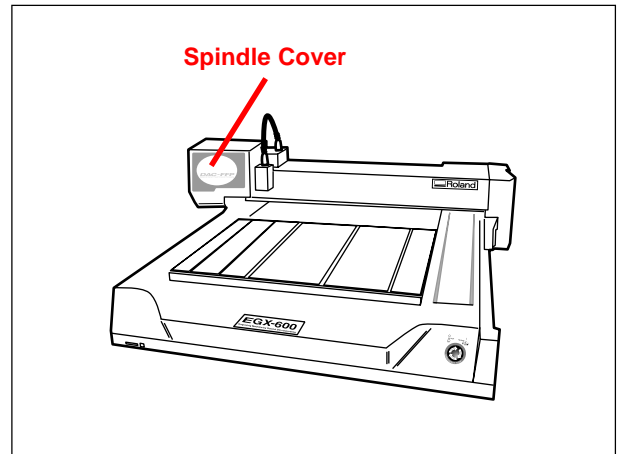
- 9** Select the [AXIS Y] in the [LOAD] menu and press [ENTER] key. Then, Carriage moves to the Limit Position. Enter the value 500 and press the [ENTER] key.



- 10** After setting the value, the load check starts.
The Carriage moves in the Y direction to check the load.

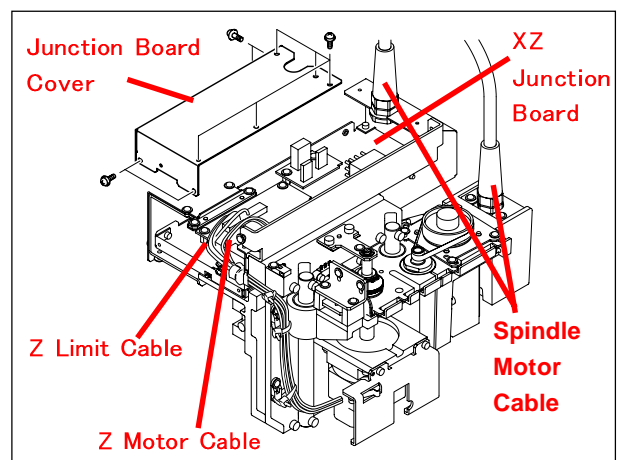
3-4 Z Axis Motor_Replacement (Referential Time : 30 minutes)

- 1** Remove the Spindle Cover.

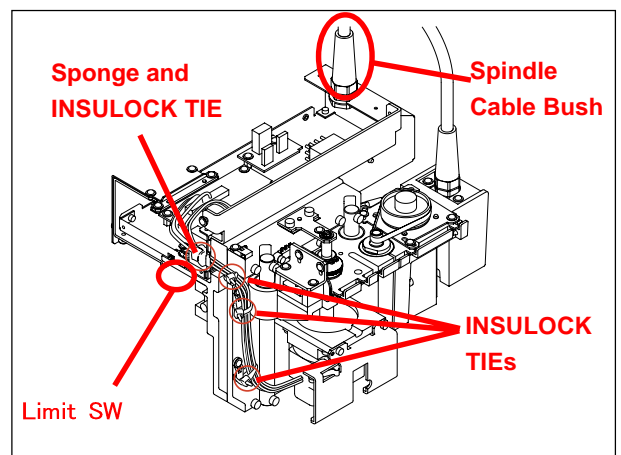


3

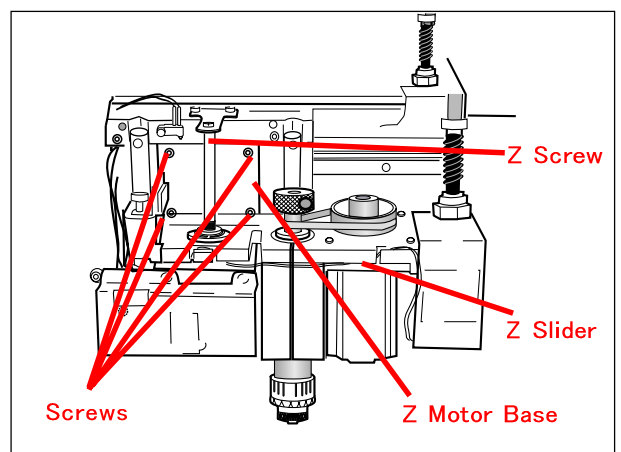
- 2** Remove the Junction Board Cover.
Disconnect the Z Motor Cable, Z Limit Cable and Spindle Motor Cable from the XZ Junction Board.



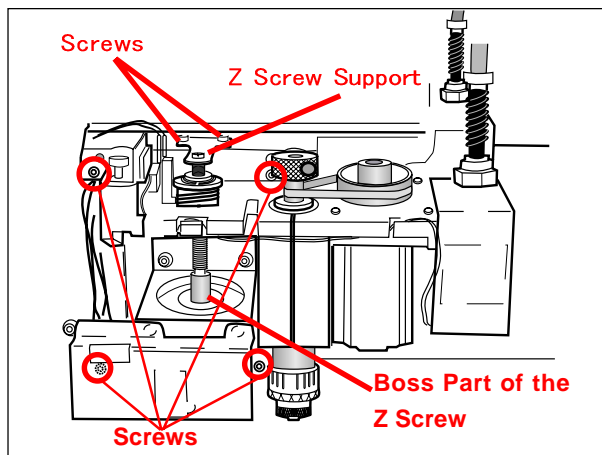
- 3** Remove the Limit SW and loosen the Spindle Cable Bush.
Then, cut off the INSULOCK TIES and remove the Sponge.



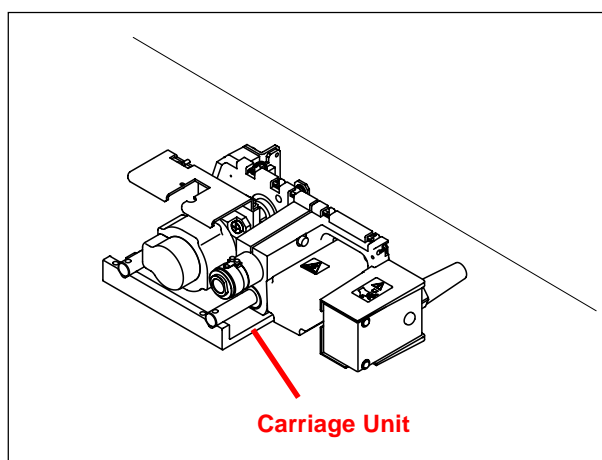
- 4** Loosen the 4 screws on the Z Motor Base by rotating the Z Screw and making the Z Slider up and down.



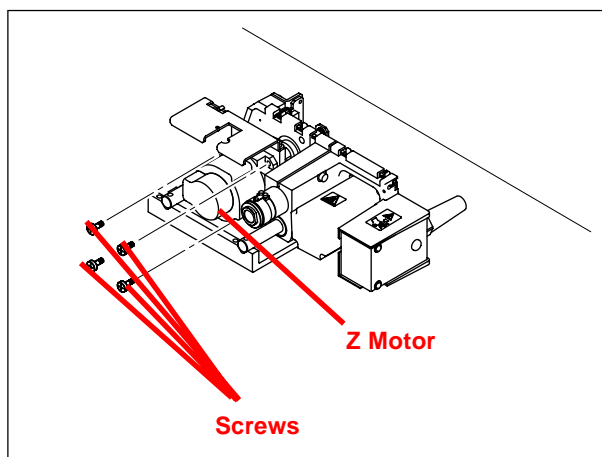
- 5** Remove the 4 screws fixing the Carriage Unit.
And loosen the 2 Set Screws on the Boss Part of the Z Screw.
Then, Loosen the 2 Screws on the Z Screw Support.



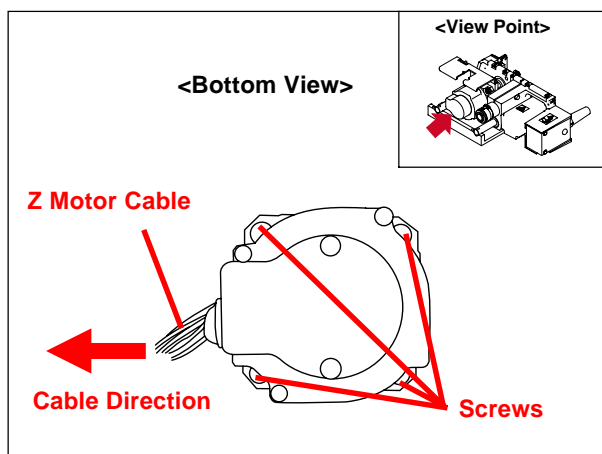
- 6** Detach the Carriage Unit from the Carriage Base.



- 7** Remove the Z Motor and change it to the new one. Then tighten up the screws for fixing the Z Motor.



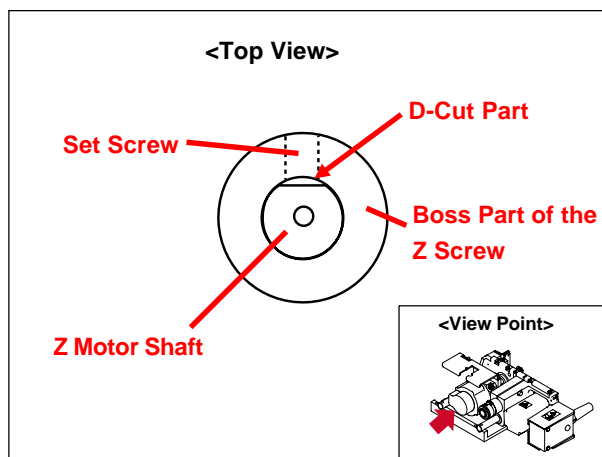
When fixing the Z Motor, be careful with the direction.
Fix the Z Motor Shaft to the Boss part of the Z Screw while taking care with the cable direction as the figure.



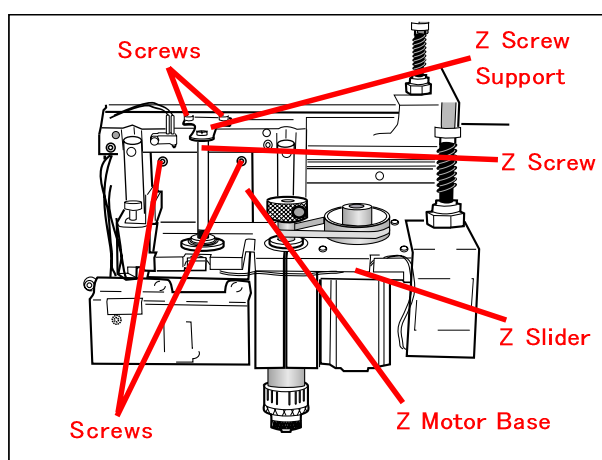
- 8** Tighten up the Set Screw on the Boss part of the Z Screw.



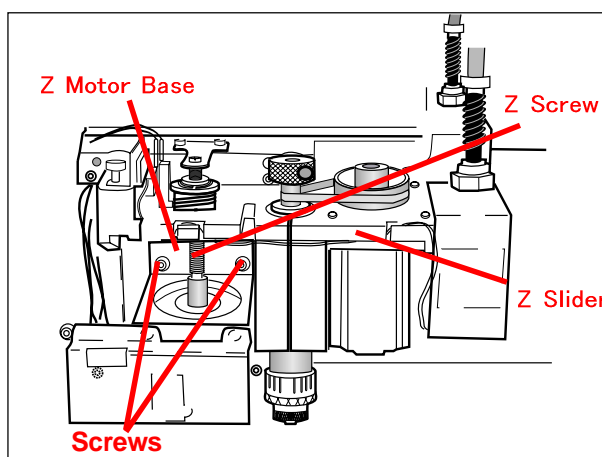
It is necessary to fix the Set Screw against the D-Cut part of the Z Motor Shaft.
At the same time, please be careful if the top of the Z Motor Shaft hit the Z Screw.



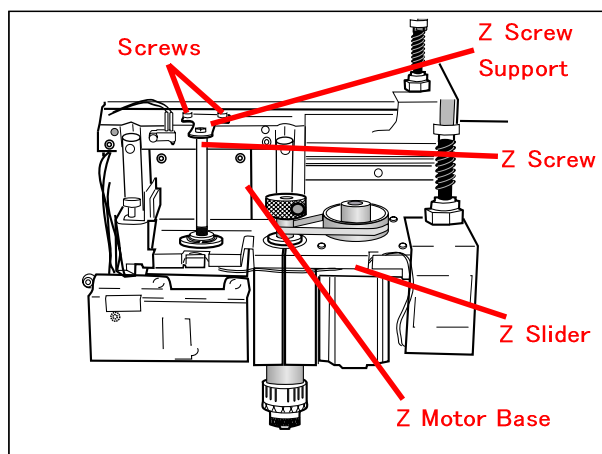
- 9** Tighten the 2 Screws on the Z Screw Support temporarily. Then, tighten up the 2 Screws on the upper part of the Z Motor Base by rotating the Z Screw and making the Z Slider downward.



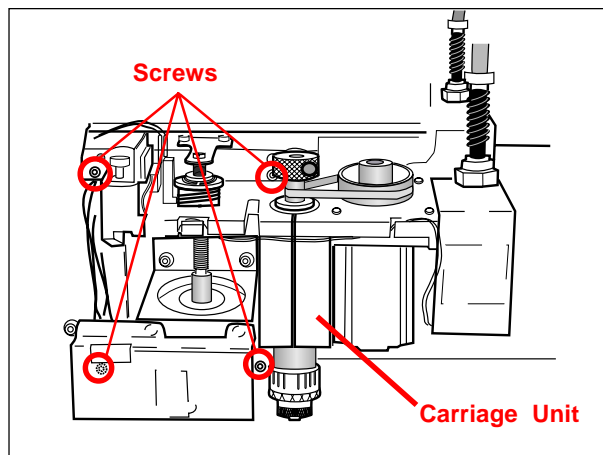
- 10** Tighten up the 2 Screws on the lower part of the Z Motor Base by rotating the Z Screw and making the Z Slider upward.



- 11** Tighten up the 2 Screws on the Z Screw Support by rotating the Z Screw and making the Z Slider downward. Then, apply the grease on the Z Screw and make sure that the Z Slider moves smoothly.



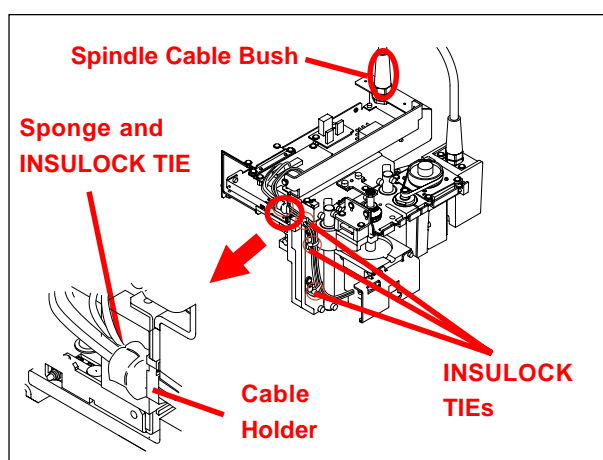
- 12** Tighten up the screws fixing the Carriage Unit.



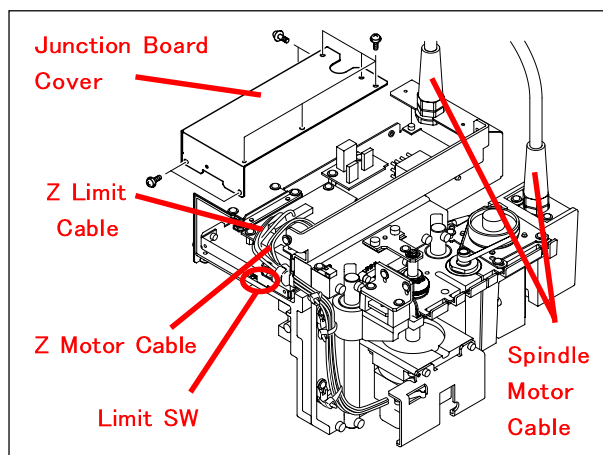
- 13** Connect the INSULOCK TIEs and the Sponge as the figure.
Tighten up the Spindle Motor Cable Bush.



Be careful with the position of the Sponge.
It is necessary to put it beside the Cable Holder.

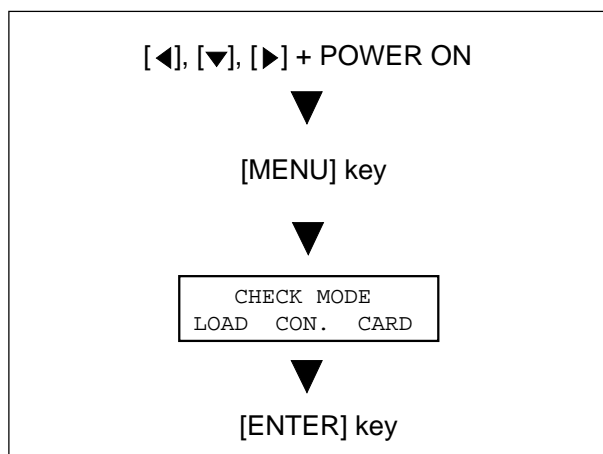


- 14** Connect the Z Motor Cable, Z Limit Cable and Spindle Motor Cable to the XY Junction Board.
Then, fix the Limit Switch and the Junction Board Cover.

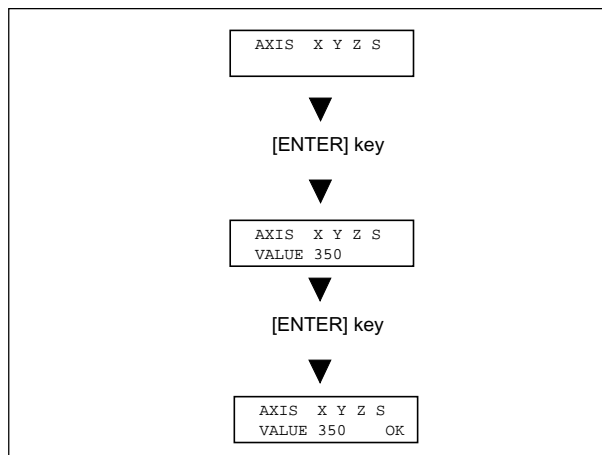


<Z Axis Load Check>

- 15** Turn on the Power while pressing the [◀], [▼], [▶] keys to enter the Service Mode.
Select the [LOAD] menu by pressing the [MENU] key and press [ENTER] key.



- 16** Select the [AXIS Z] in the [LOAD] menu and press [ENTER] key. Then, Carriage moves to the Limit Position. Enter the value 350 and press the [ENTER] key.



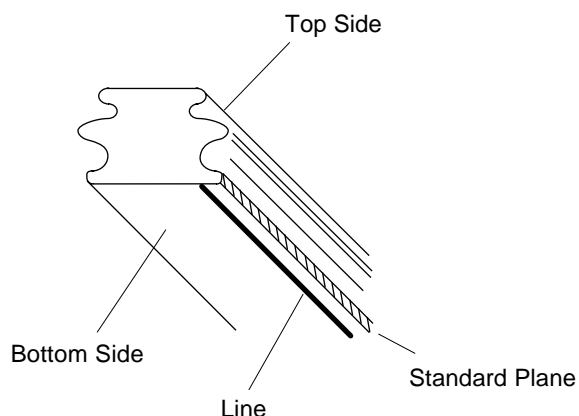
- 17** After setting the value, the load check starts. The Carriage moves in the Z direction to check the load. If the check is OK, fix the Cover. If the check is NG, repeat **8** to **10** and **14** to **15**.

3-5 X Axis LM Guide_Repalcement (Referential Time : 35 minutes)

NOTES

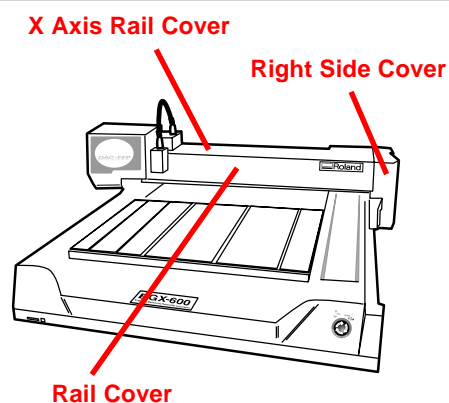
1. LM GUIDE has the direction for fixing. Bottom side of the LM GUIDE has the line that indicates its direction and the side plane of the bottom part will be the standard plane. Push the standard plane of the LM GUIDE against the standard plane of the machine when fixing the LM GUIDE.

STANDARD PLANE of LM GUIDE

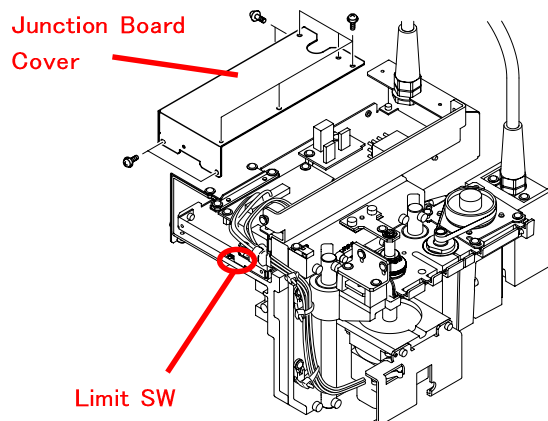


3

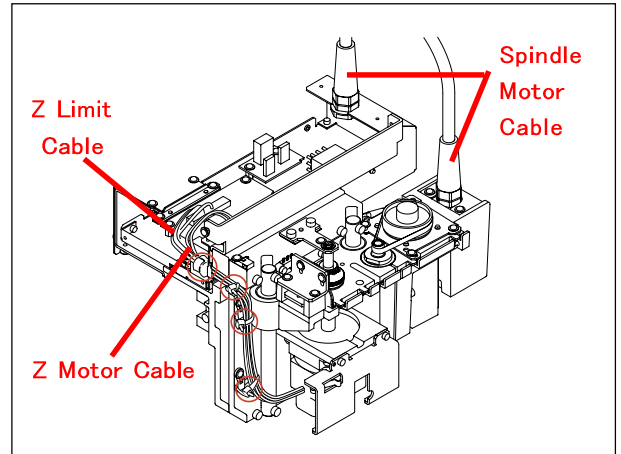
- 1 Remove the X Axis Rail Cover, Rail Cover and Right Side Cover.



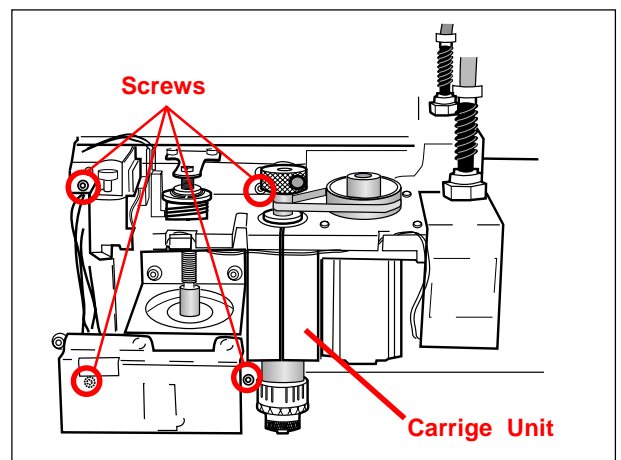
- 2 Remove the Junction Board Cover. Then, remove the Limit Switch.



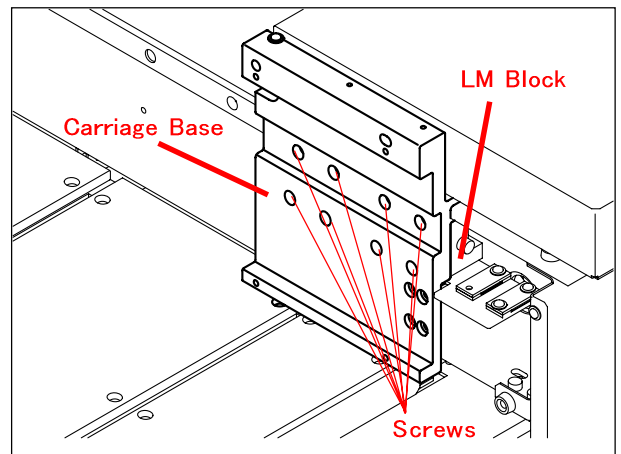
- 3** Disconnect the Z Limit Cable, Z Motor Cable and Spindle Motor Cable from the XZ Junction Board.



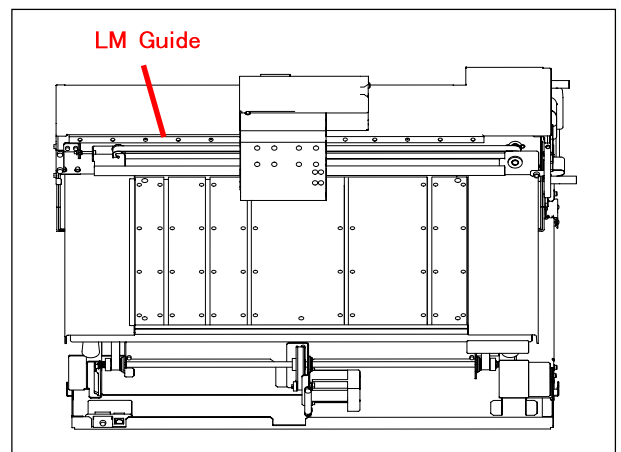
- 4** Remove the Screws fixing the Carriage Unit and detach it from the Main Unit.



- 5** Remove the Carriage Base from the LM Block.

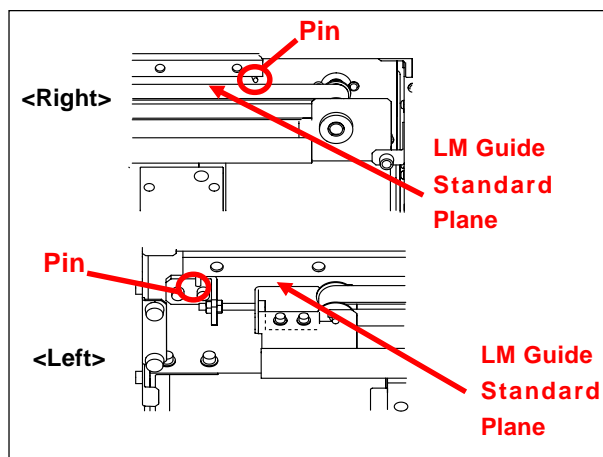


- 6** Remove the LM Guide and change it to the new one.



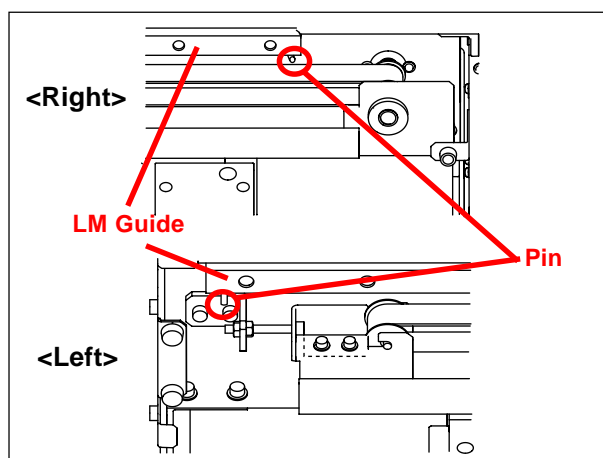


When fixing the X LM Guide, be careful with the direction.
Fix the X LM Guide fitting the standard plane with the Pins as the figure.

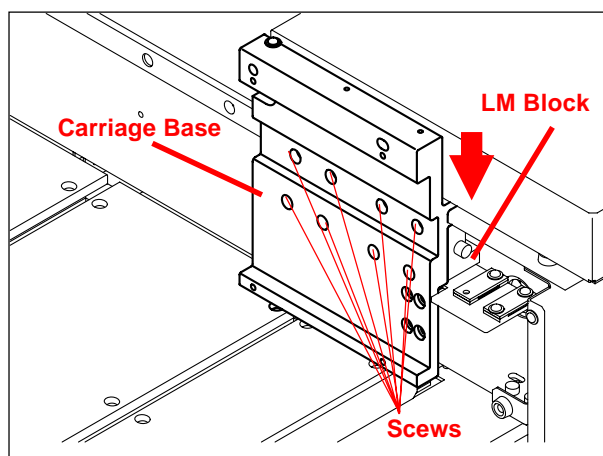


3

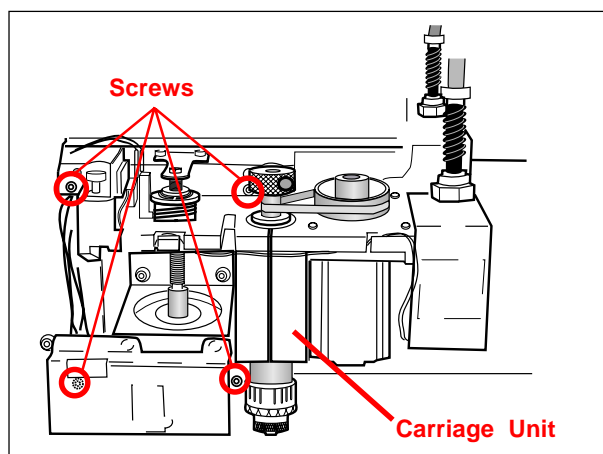
- 7** Tighten the screws fixing the LM Guide temporarily.
Then, tighten up the screws for fixing the LM Guide by pushing to the Pins.



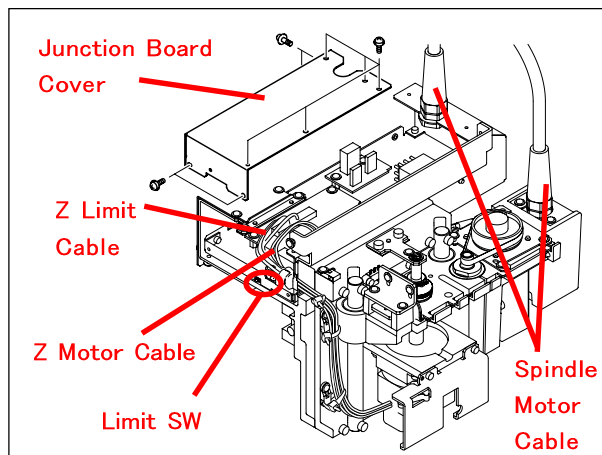
- 8** At first, tighten the Screws fixing the Carriage Base to the LM Block temporarily.
And next, tighten up the Screws fixing the Carriage Base to the LM Block by pushing Carriage Base to the LM Block.



- 9** Tighten up the screws fixing the Carriage Unit.



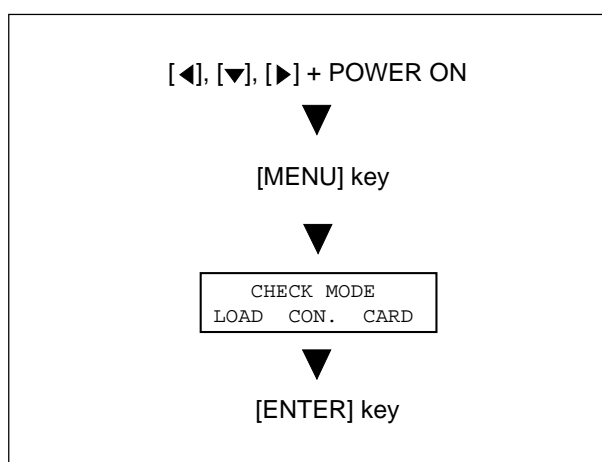
- 10** Connect the Z Motor Cable, Z Limit Cable and Spindle Motor Cable to the XZ Junction Board.
Then, fix the Limit Switch and Junction Board Cover.



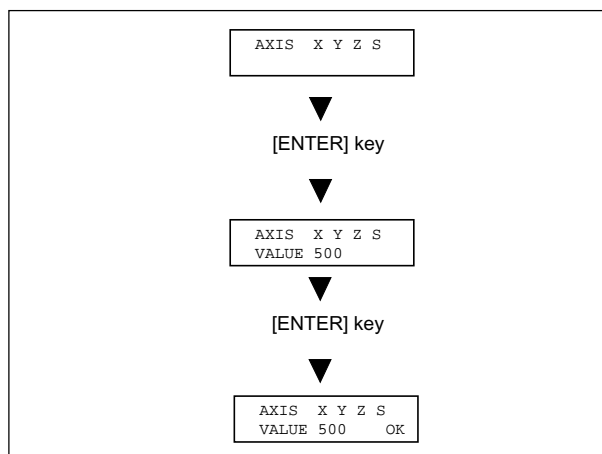
3

<X Axis Load Check>

- 11** Turn on the Power while pressing the [◀], [▼], [▶] keys to enter the Service Mode.
Select the [LOAD] menu by pressing the [MENU] key and press [ENTER] key.



- 12** Select the [AXIS X] in the [LOAD] menu and press [ENTER] key. Then, Carriage moves to the Limit Position.
Enter the value 500 and press the [ENTER] key.



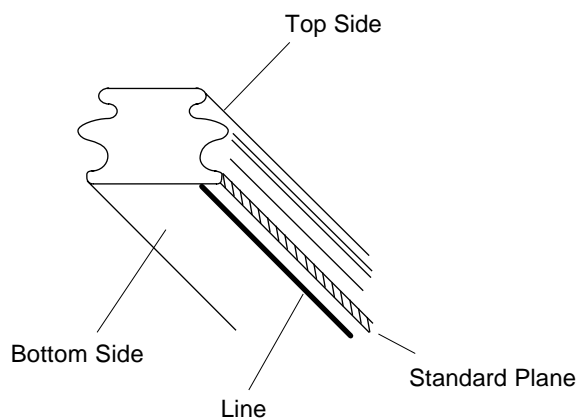
- 13** After setting the value, the load check starts.
The Carriage moves in the X direction to check the load.
If the check is OK, fix the Covers.
If the check is NG, repeat **6** to **11**.

3-6 Y Axis LM Guide_Replacement (Referential Time : 35 minutes)

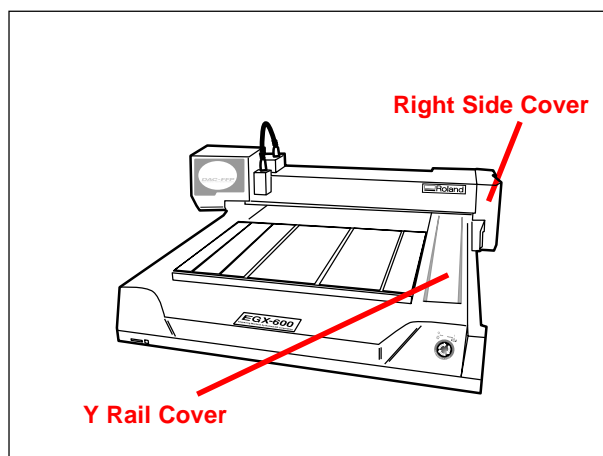
NOTES

1. LM GUIDE has the direction for fixing. Bottom side of the LM GUIDE has the line that indicates its direction and the side plane of the bottom part will be the standard plane.
Push the standard plane of the LM GUIDE against the standard plane of the machine when fixing the LM GUIDE.

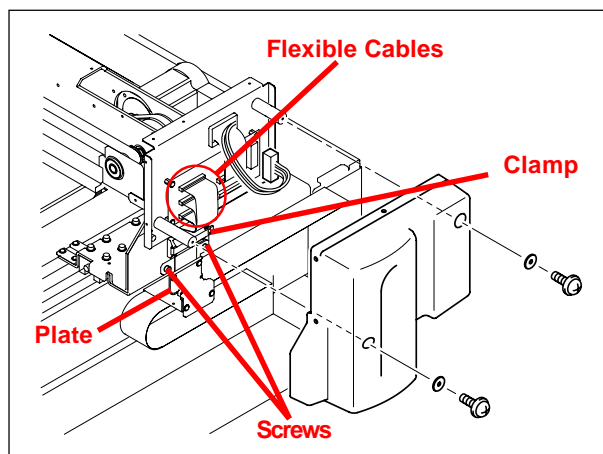
STANDARD PLANE of LM GUIDE



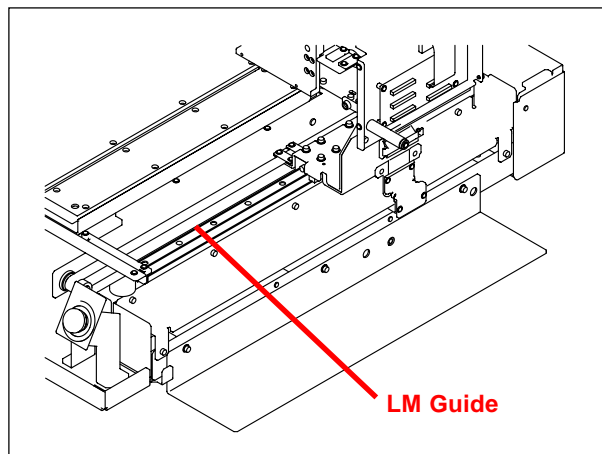
- 1 Remove the Right Side Cover and Y Rail Cover.



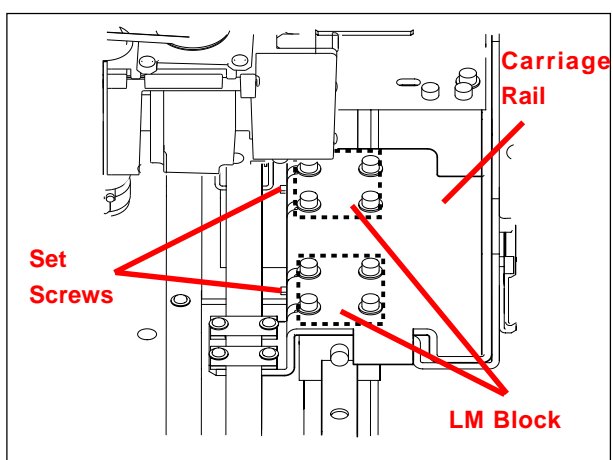
- 2 Then, disconnect the Flexible Cables and open the Clamp. Remove the screws fixing the Plate and remove the Plate.



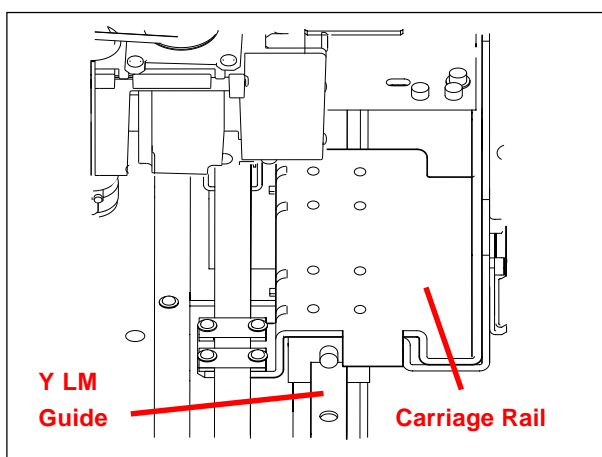
- 3** Remove the screws fixing the LM Guide.



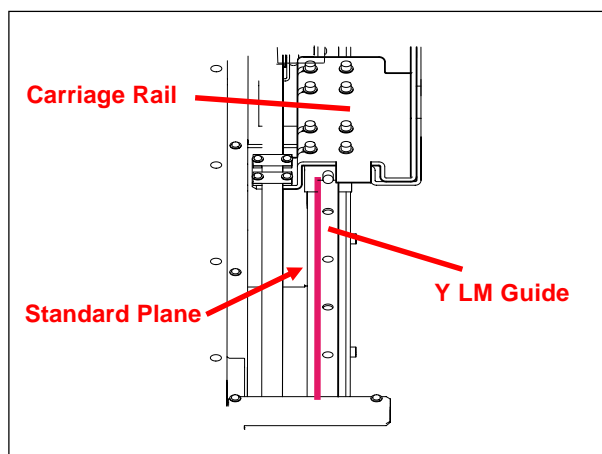
- 4** Remove the screws fixing the LM Block on the Carriage Rail and loosen the Set Screws.



- 5** Hold the Carriage Rail up and take the LM Guide off. Then, fix the new LM Guide by tightening screws temporarily.



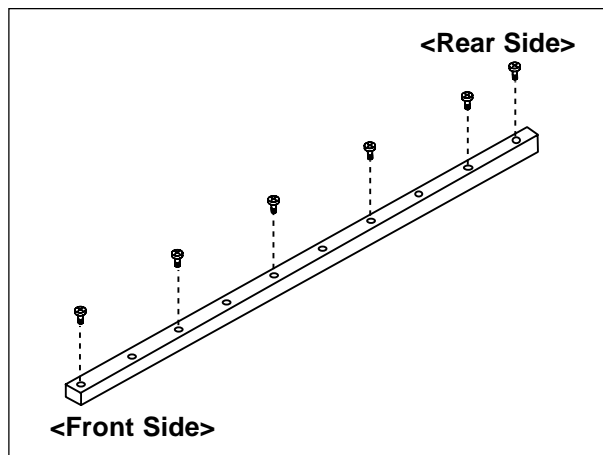
When fixing the Y LM Guide, be careful with the direction.
Fix the Y LM Guide fitting the standard plane with direction as the figure.



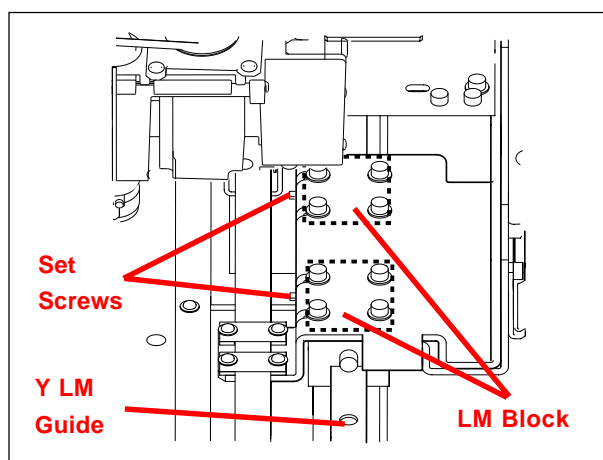


When fixing the Y LM Guide, be careful with the position of the Screws as the figure.

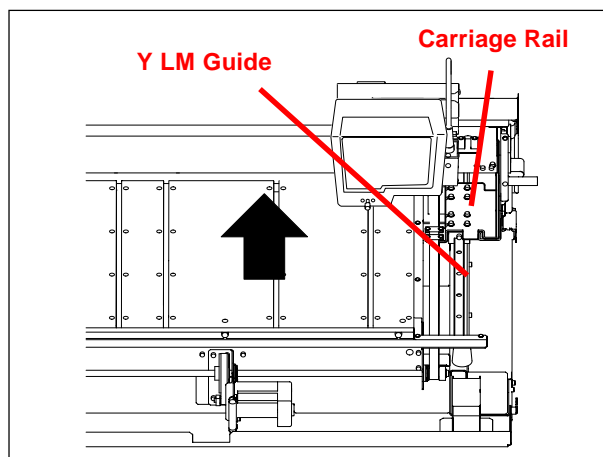
3



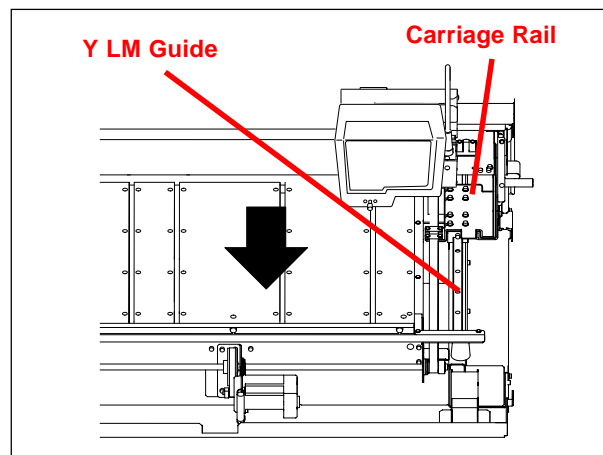
- 6** Fix the Carriage Rail to the LM Block and tighten up the Set Screws and Screws.



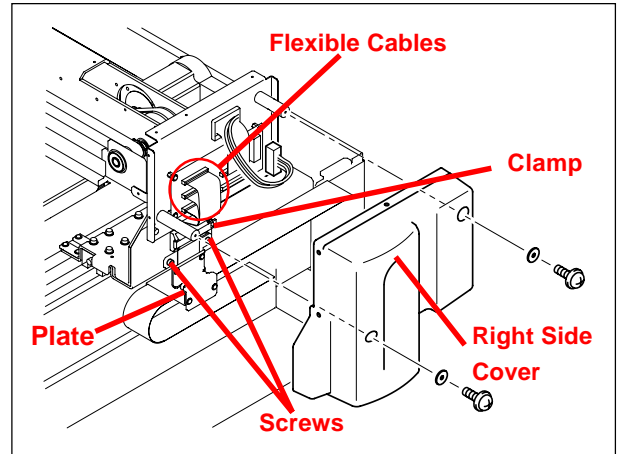
- 7** Push the Carriage Rail to the back side of the Machine and tighten up the screws of the front side.



- 8** Move the Carriage Rail to the front side of the machine and tighten the screws of the rear side.



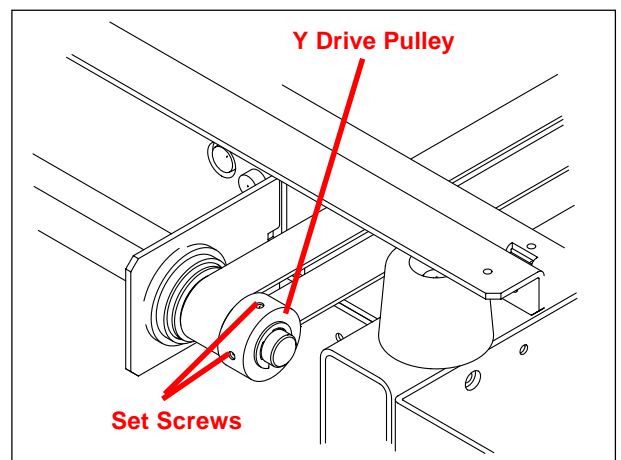
- 9** Tighten up the Screws for fixing the Plate and connect the Flexible Cables. Then, close the Clamp.
Fix the Right Side Cover.



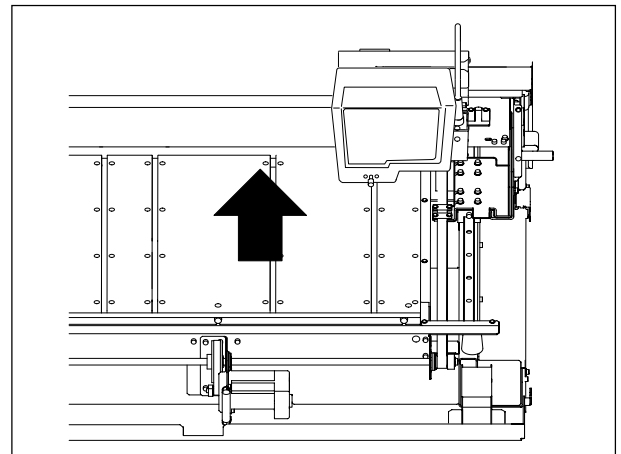
3

<Right Angle Adjustment of X Axis>

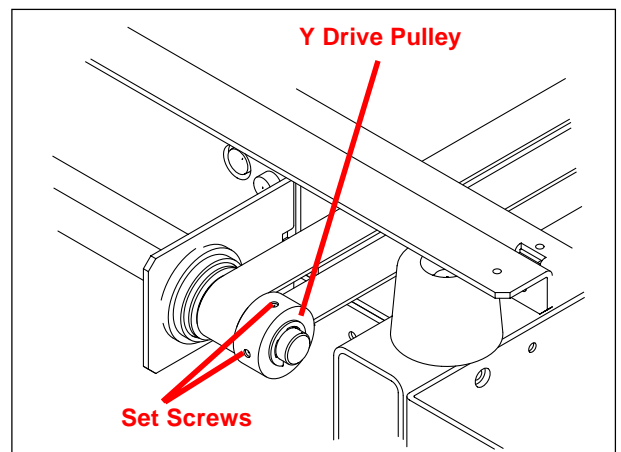
- 10** Loosen the Set Screws of the Y Drive Pulley.



- 11** Move the X-Rail to the Rear side frame.

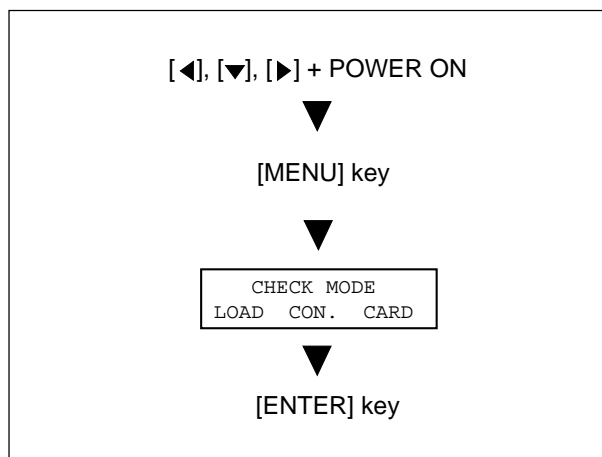


- 12** Tighten the Set Screws by pushing the X Rail to rear side frame.
Make sure that the Y Drive Pulley won't idle.

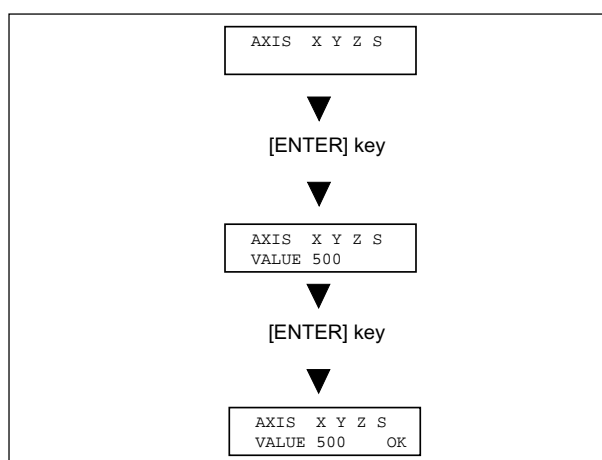


<Y Axis Load Check>

- 13** Turn on the Power while pressing the [◀], [▼], [▶] keys too enter the Service Mode.
Select the [LOAD] menu by pressing the [MENU] key and press [ENTER] key.



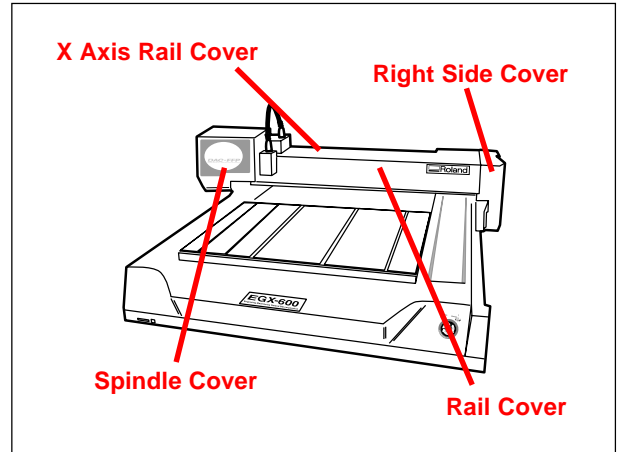
- 14** Select the [AXIS Y] in the [LOAD] menu and press [ENTER] key. Then, Carriage moves to the Limit Position.
Enter the value 500 and press the [ENTER] key.



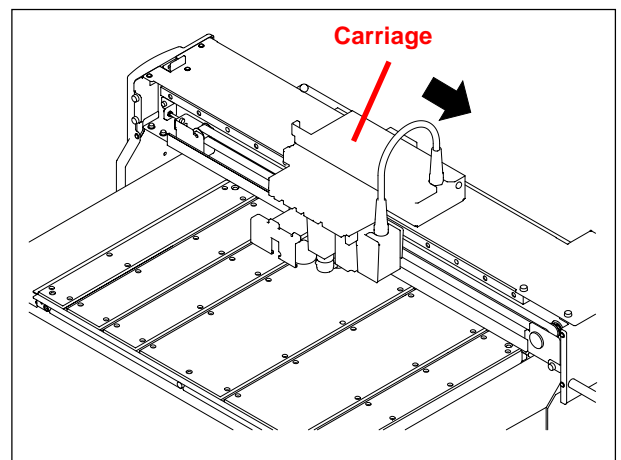
- 15** After setting the value, the load check starts.
The Carriage moves in the Y direction to check the load.
If the check is OK, fix the Covers.
If the check is NG, repeat **6** to **13**.

3-7 X Belt_Repalcement (Referential Time : 30minutes)

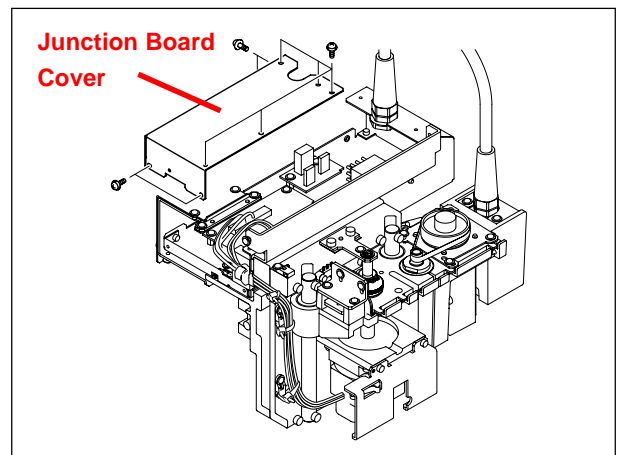
- 1** Remove the X Axis Rail Cover, Rail Cover and Right Side Cover.



- 2** Move the Carriage to the Right side by hands.



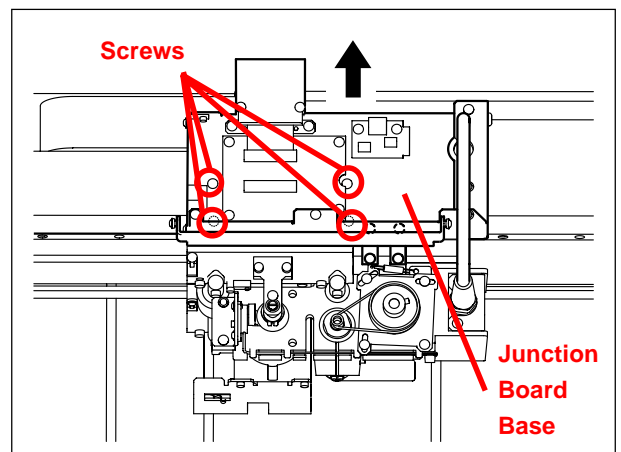
- 3** Remove the Junction Board Cover.



- 4** Remove the screws as the figure and after that, shift the Junction Board Base behind from the Carriage.

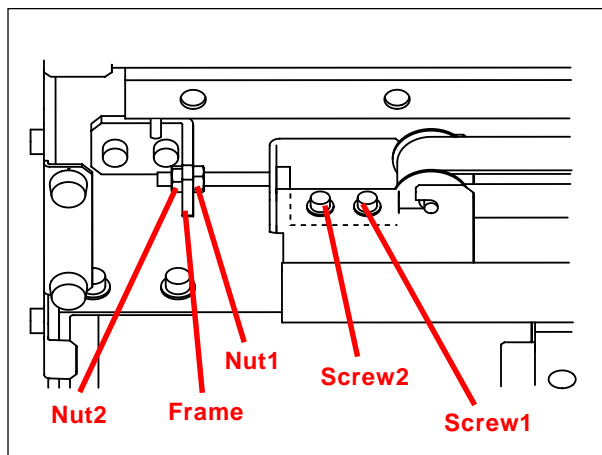


Be careful the Limit SW. It is possible to break it when you shift the Junction Board Base.

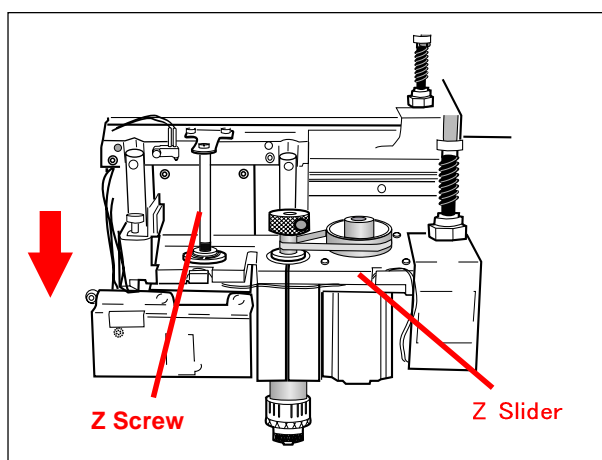


3

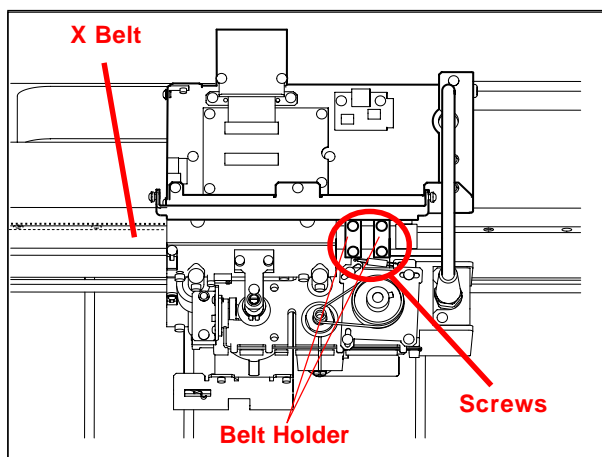
- 5** Loosen the Screw1 and remove the Screw2 and then loosen the Nut2.



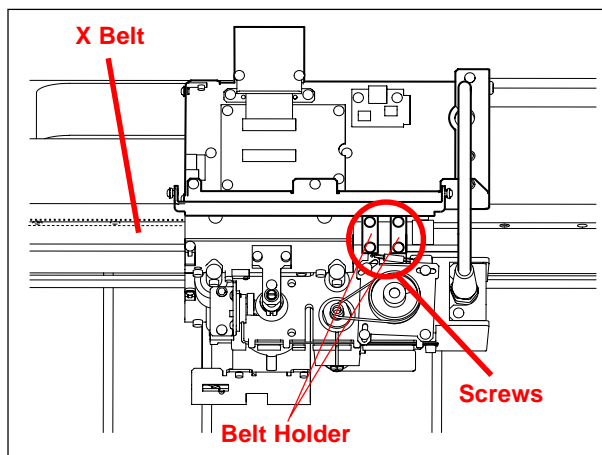
- 6** Move the Z Slider to the bottom part by rotating the Z Screws.



- 7** Loosen the screws from the Belt Holder and after that, remove the X Belt.

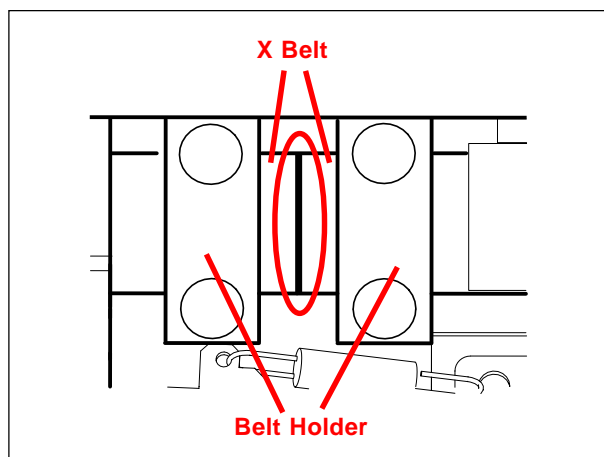


- 8** Put the new belt through the Belt Holder and tighten up the Screws.





When fixing the X Belt, be careful not to overlap the both end of the Belts.

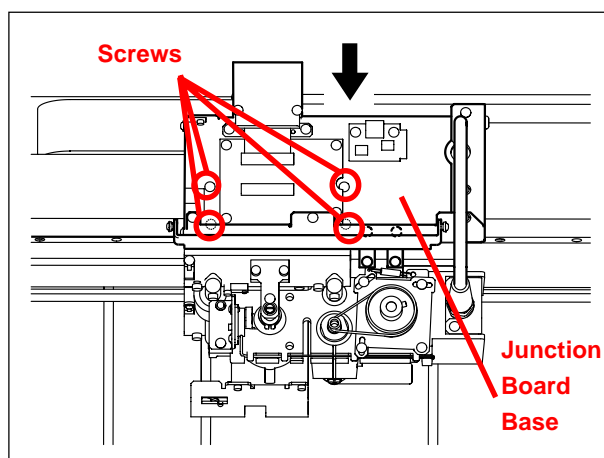


3

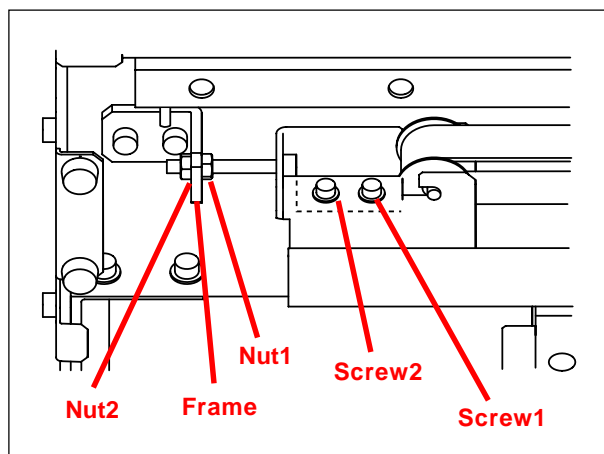
- 9** Tighten up the Screws as the figure for fixing the Junction Board Base.



Be careful the Limit SW. It is possible to break it when you put the Junction Board Base.

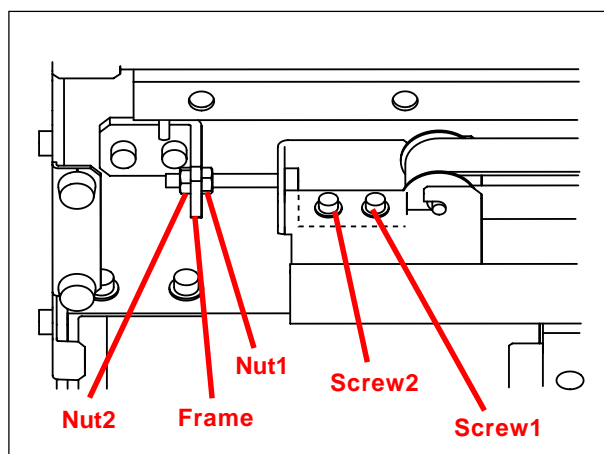


- 10** Fix the Screw2 temporarily.



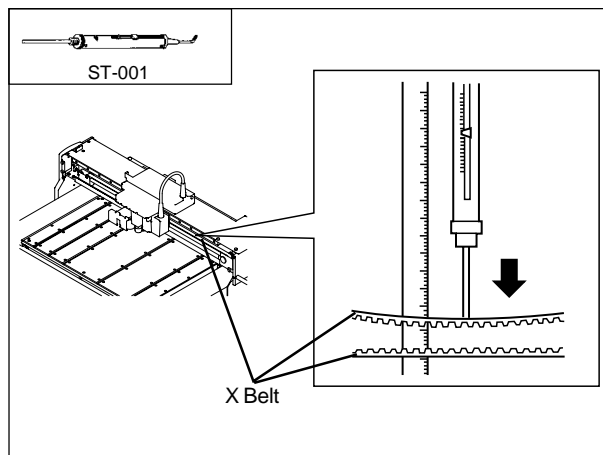
<X Belt Tension Adjustment>

- 11** Tighten up the Nut2 so that there is no gap between the Frame and the Nut1.



- 12** Push the X-Belt with the Tension Gauge (ST-001) at the center position of the X Belt and check the bending amount with the ruler.

Confirm that the Pressing Force matches with the Bending Amount in reference to the next table.

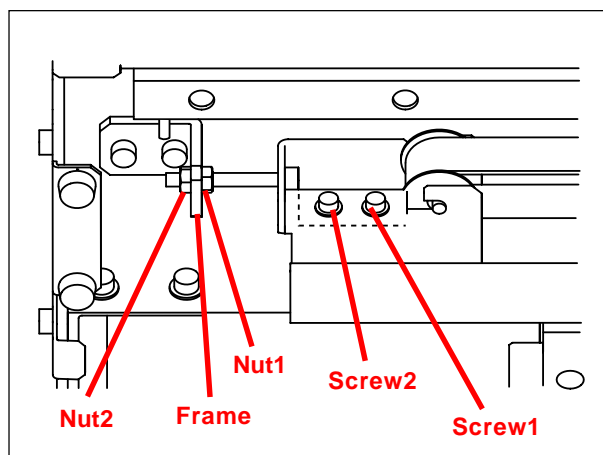


<Reference Table>

	Pressing Force	Bending Amount
EGX-600	720gf	10.0mm
EGX-400	720gf	7.0mm

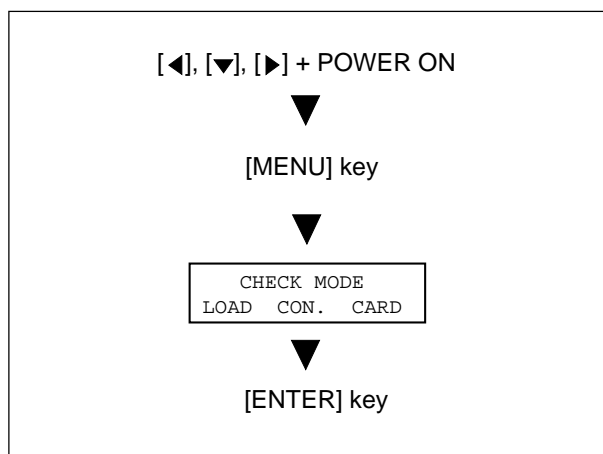
- 13** When the Pressing Force matches with the Bending Amount, tighten up the Screw1 and Screw2. Then, carry out the X Axis Load check.

If the Pressing Force does not match with the Bending Amount, adjust the Belt Tension by Nut1 and 2 again. After that, measure the tension and when the Belt Tension becomes to the proper value, tighten up the Nut1 and 2.

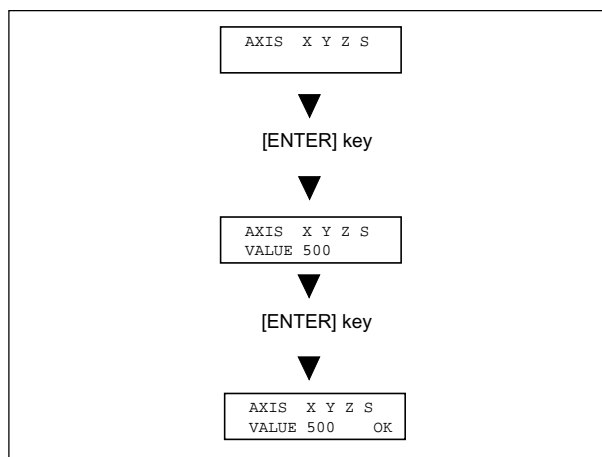


<X Axis Load Check>

- 14** Turn on the Power while pressing the [◀], [▼], [▶] keys to enter the Service Mode. Select the [LOAD] menu by pressing the [MENU] key and press [ENTER] key.



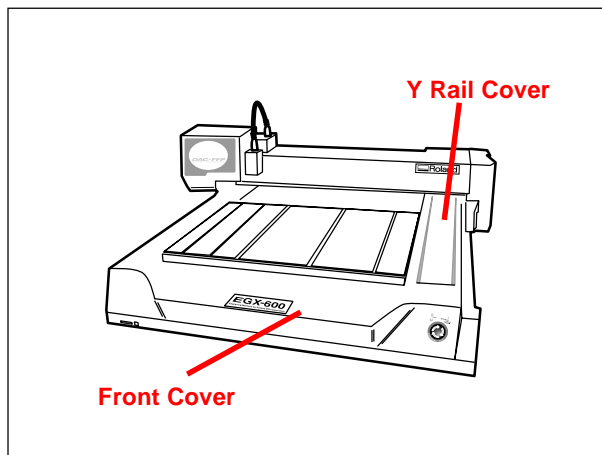
- 15** Select the [AXIS X] in the [LOAD] menu and press [ENTER] key. Then, Carriage moves to the Limit Position. Enter the value 500 and press the [ENTER] key.

**3**

- 16** After setting the value, the load check starts. The Carriage moves in the X direction to check the load. If the check is OK, fix the Covers. If the check is NG, repeat **10** to **14**.

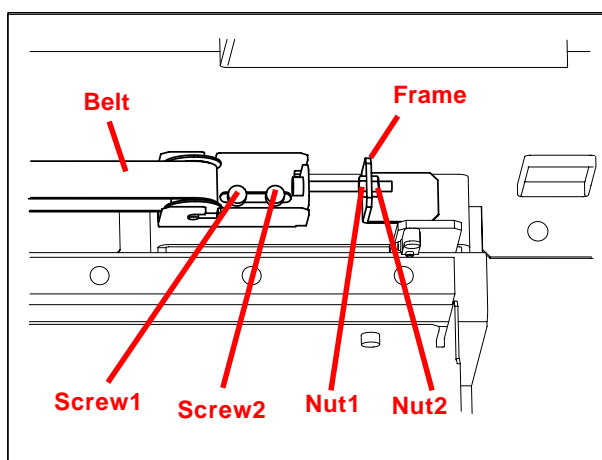
3-8 Y Belt_Repalcement (Referential Time : 30 minutes)

- 1 Remove the Y Rail Cover and the Front Cover.



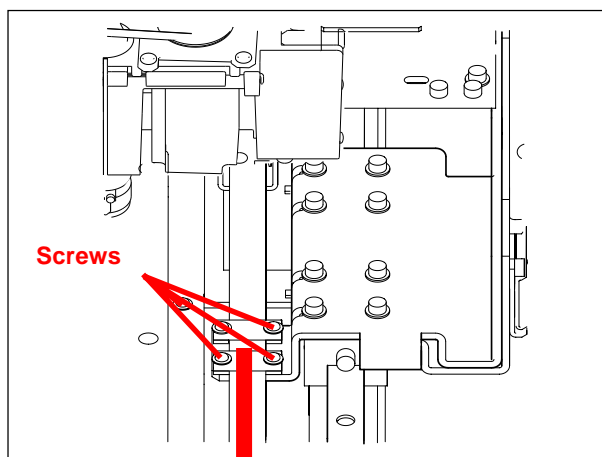
- 2 Loosen the Screw1 and remove Screw2 and then loosen the Nut2.

Then, remove the Belt from the Idle Pulley.

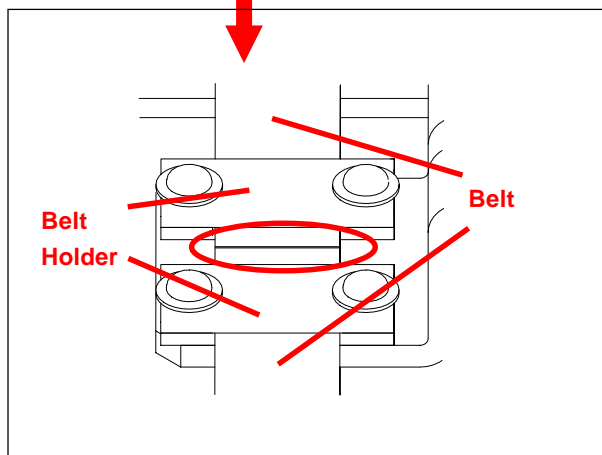


- 3 Loosen the 4 screws and remove the Belt from the Carriage Rail Base.

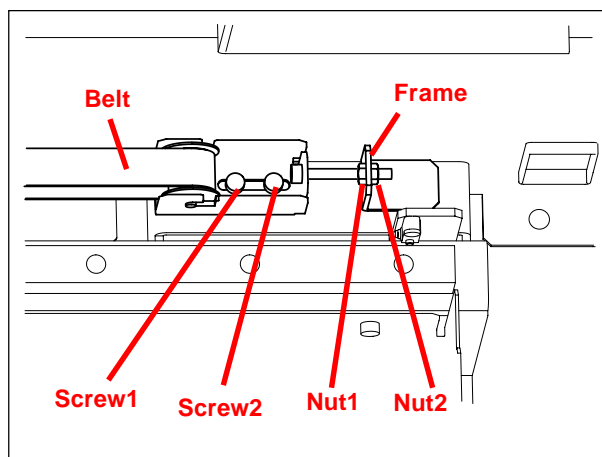
Put the new Belt through the Belt Holder and tighten up the Screws.



When putting the new Belt, be careful not to overlap the both end of the Belt.

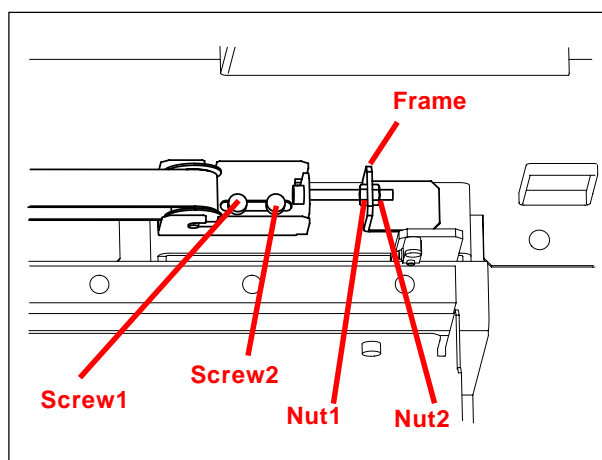


- 4** Fix the Screw2 temporarily.

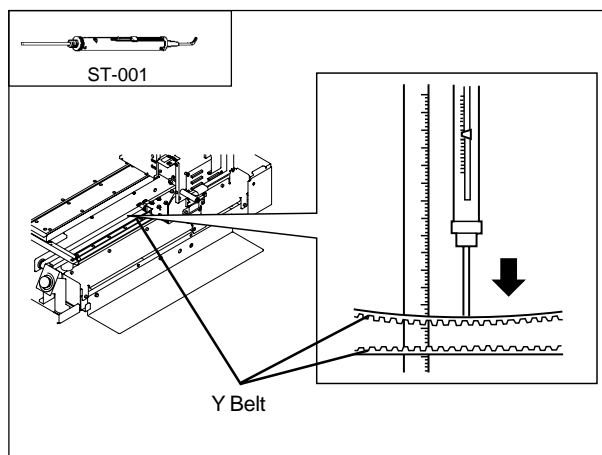


<Y Belt Tension Adjustment>

- 5** Tighten up the Nut2 so that there is no gap between the Frame and the Nut1.



- 6** Push the Y-Belt with the Tension Gauge (ST-001) at the middle position between the Y-Drive Pulley and check the bending amount with the ruler. Confirm that the Pressing Force matches with the Bending Amount in reference to the next table.

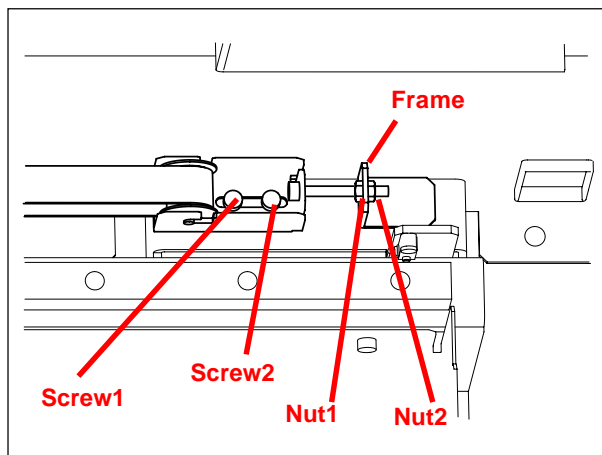


<Reference Table>

	Pressing Force	Bending Amount
EGX-600	720gf	8.0mm
EGX-400	720gf	6.0mm

7 When the Pressing Force matches with the Bending Amount, tighten up the Screw1 and Screw2. Then, carry out the X Axis Load check.

If the Pressing Force does not match with the Bending Amount, adjust the Belt Tension by Nut1 and 2 again. After that, measure the tension and when the Belt Tension becomes to the proper value, tighten up the Nut1 and 2.

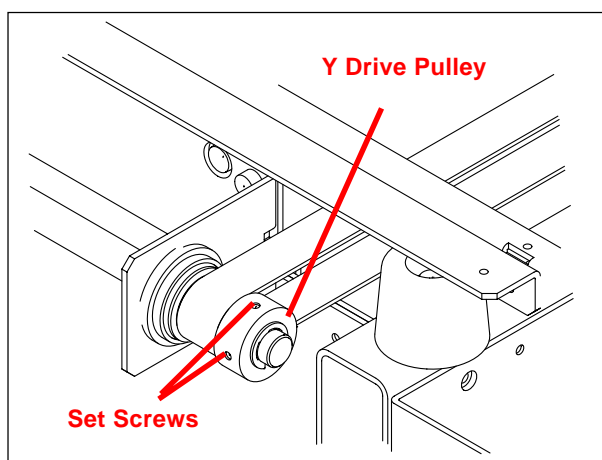


3

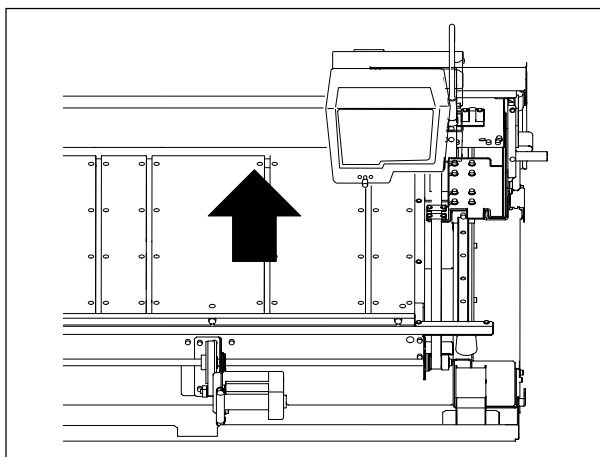
<Right Angle Adjustment of X Axis>

8 After carrying out the Y Belt Tension Adjustment, carry out the Right Angle Adjustment of X Rail.

Loosen the Set Screws of the Y Drive Pulley.

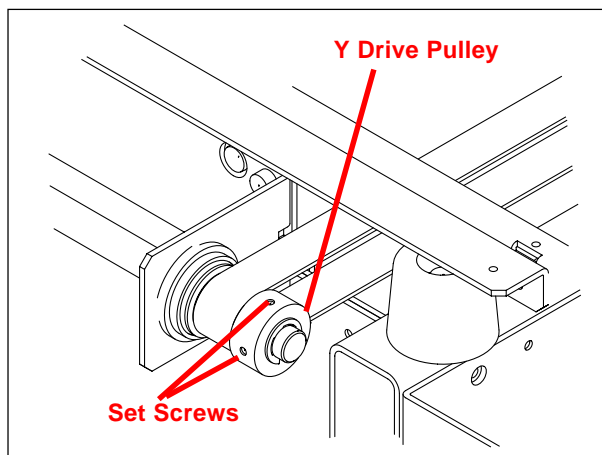


9 Move the X-Rail to the Rear side frame.



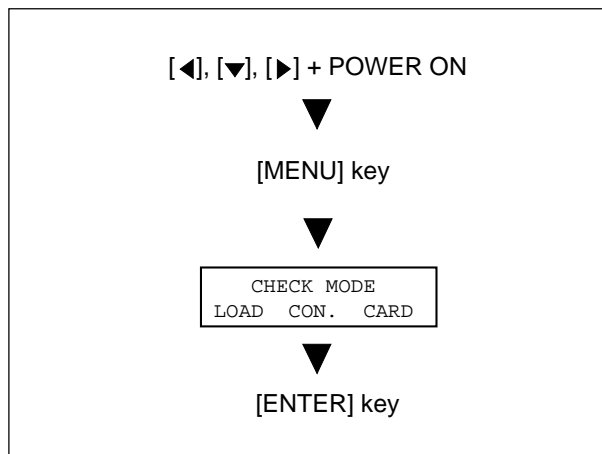
10 Tighten the Set Screws by pushing the X Rail to rear side frame.

Make sure that the Y Drive Pulley won't idle.

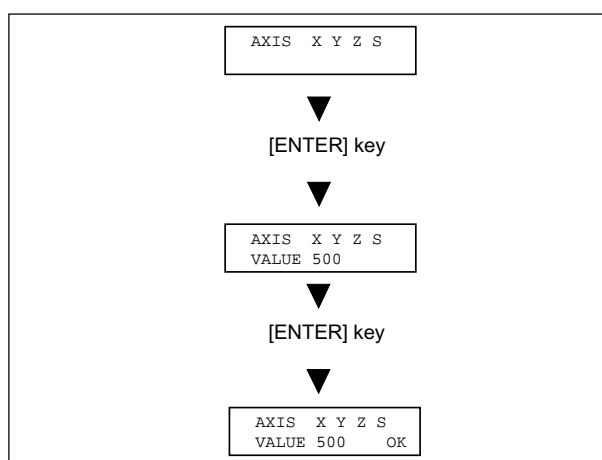


<Y Axis Load Check>

- 11** Turn on the Power while pressing the [◀], [▼], [▶] keys to enter the Service Mode.
Select the [LOAD] menu by pressing the [MENU] key and press [ENTER] key.

**3**

- 12** Select the [AXIS Y] in the [LOAD] menu and press [ENTER] key. Then, Carriage moves to the Limit Position.
Enter the value 500 and press the [ENTER] key.

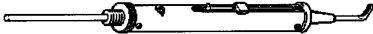


- 13** After setting the value, the load check starts.
The Carriage moves in the Y direction to check the load.
If the check is OK, fix the Covers.
If the check is NG, repeat **4** to **11**.

4 Adjustment

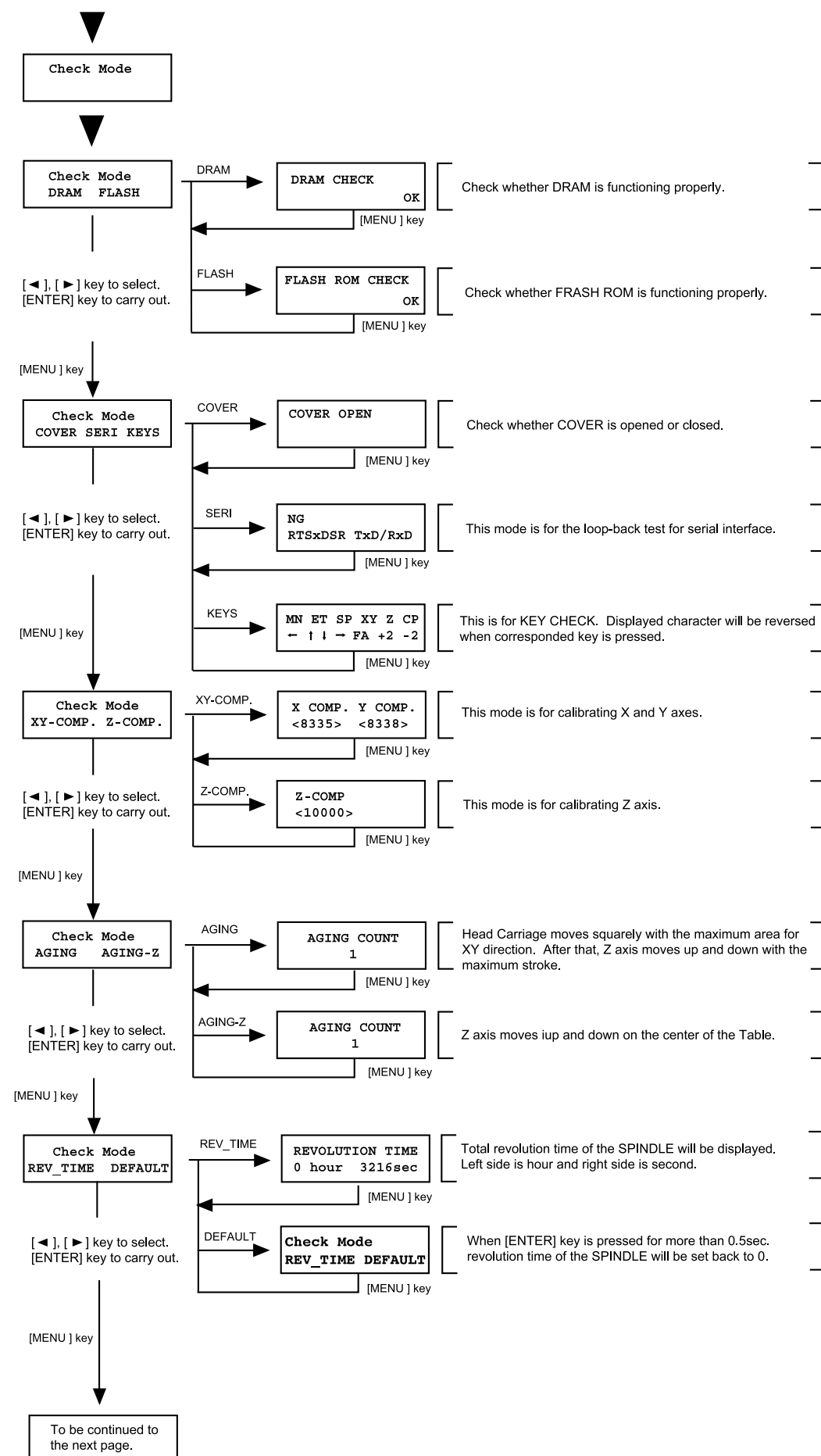
4-1 Special Tool

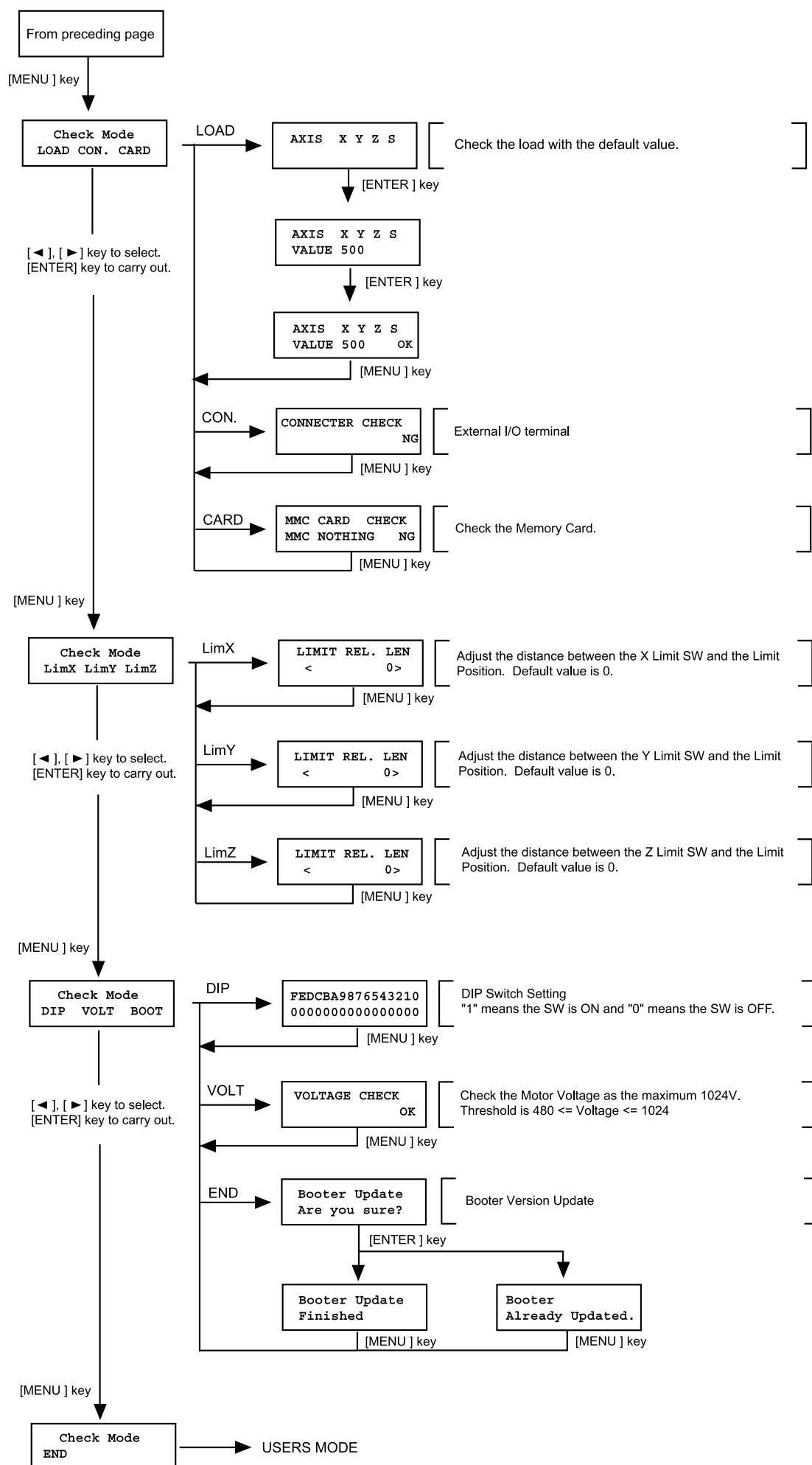
Table shown below is a list of special tools recommended by Roland DG Corporation.

Tool No.	ST-001	
Tool Name	TENSION GAUGE 2000g (2N)	
Purpose	Belt Tension Adjustment	

4-2 Service Mode

[◀], [▼], [▶] and Power ON





LIMITED INITIALIZE

Parameter which has been set by the user inside the Flash Memory will be initialized.

Turn on the Power Switch while pressing the [ENTER] key.



```
Initialize Start
finished
```

ALL INITIALIZE

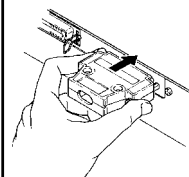
All parameter inside Flash Memory, including Service Mode settings, will be initialized.

Turn on the Power Switch while pressing the [◀], [▶], [ENTER] keys.



```
All Initialize
Finished
```

SERIAL INTERFACE CHECK



Connect the Serial Interface.

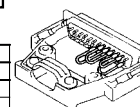


Select SERIAL CHECK in Service Mode.



```
NG
RTSxDSR TxD/RxD
```

Connection	
2 (TxD)	3 (RxD)
4 (RTS)	6 (DSR)
5 (CTS)	20 (DTR)
14 (STxD)	16 (SRxD)



4

FIRMWARE VERSION

Displays the version of the FIRMWARE.

Turn on the Power Switch while pressing the [▼] key.



```
ROM Ver. 1.0
BOOT Ver. 1.0
```

LANGUAGE SELECTION

Language displayed on Menu can be selected.

Turn on the Power Switch while pressing [MENU] key.



```
ENGLISH JAPANESE
```

CALIBRATION DEMO

Engraving for checking CALIBRATION starts.

Turn on the Power Switch while pressing [▲] key.



```
DEMO CHECK
```

X/Y Axes or Z Axis Aging Mode

Turn on the Power Switch while pressing the [◀], [▲], [▶] keys.



Select [AGING] or [AGING-Z] with [◀], [▶] key and press [ENTER] key.

```
Check Mode
AGING AGING-Z
```

4-3 HOW TO UPGRADE FIRMWARE (Referential Time : 5 minutes)

- 1** Connect PC and EGX-600/400 with the PARALLEL CABLE.



It is necessary to prepare the followings to upgrade the FIRMWARE.

1. FIRMWARE DISK
2. PC with MS-DOS
3. PARALLEL CABLE

- 4** **2** Turn on the power while pressing [▲], [▼] and [◀] keys. Press [ENTER] key when the right message appears.

[▲],[▼],[◀] + POWER ON

UPDATE B.1.10
Are you sure?

[ENTER] key

UPDATE B.1.10
Send new program

- 3** Open the [download.bat] in the FIRMWARE DISK.



BAT FILE can not be used on some PCs. Please refer to the ReadMe File in the FIRMWARE DISK.

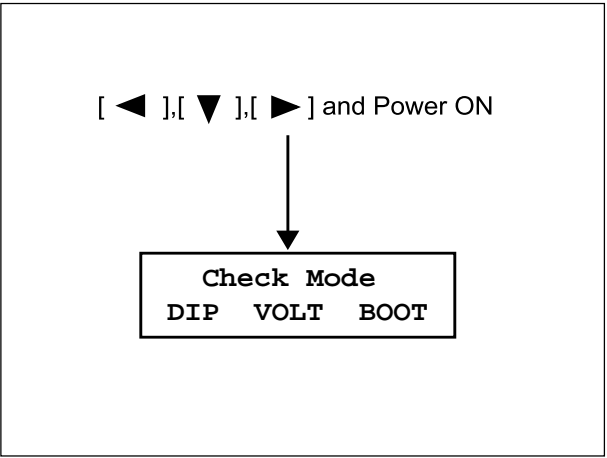
- 4** Turn off the power when completed.

Version [A1.2]
UPDATE Complete!

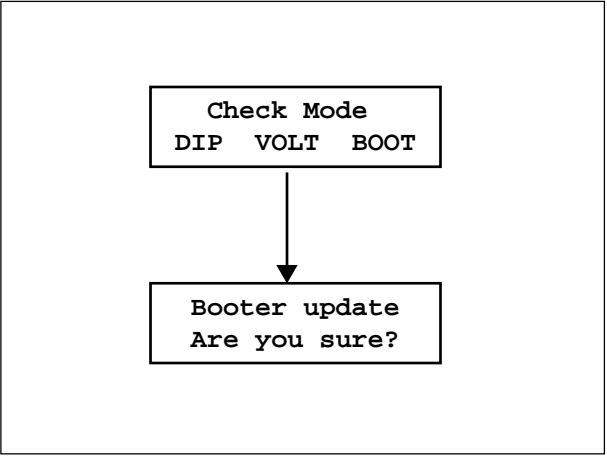
Booter is included in the Firmware.
When the Booter version in the Firmware is upgraded to the new one, carry out the following operation.

4

- 5** In order to enter the Service Mode, turn on the power while pressing [◀], [▼] and [▶] keys.



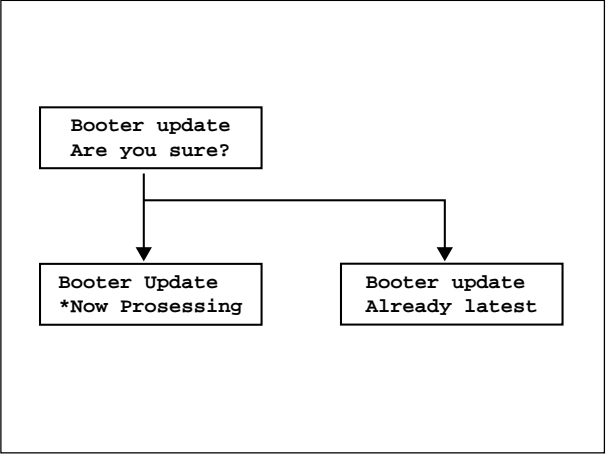
- 6** Select the [BOOT] and press the [Enter] key for three seconds.
When the "Booter Update Are you sure?" appears, press the [Enter] key.



- 7** When the message "Now processing" appears, the program update is carried out.

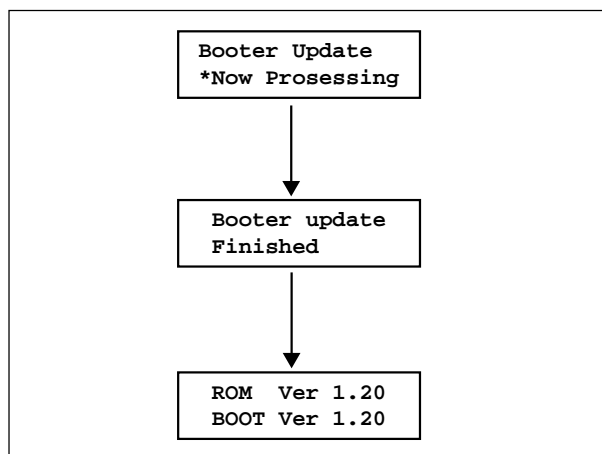


When the message "Already latest " appears after this sequence, the same version of the Booter has already been installed.



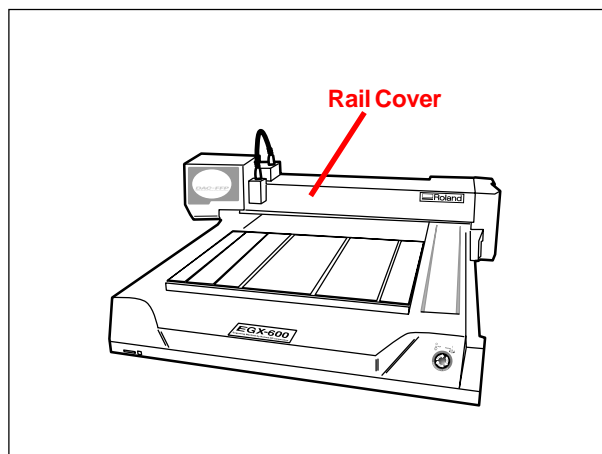
- 8** When the program update is finished, "Finished" is appeared. Then turn off the Main power Switch.

Confirm the current Booter version by turning on the power while pressing the [▼] key.



4-4 X BELT TENSION ADJUSTMENT (Referential Time : 10min.)

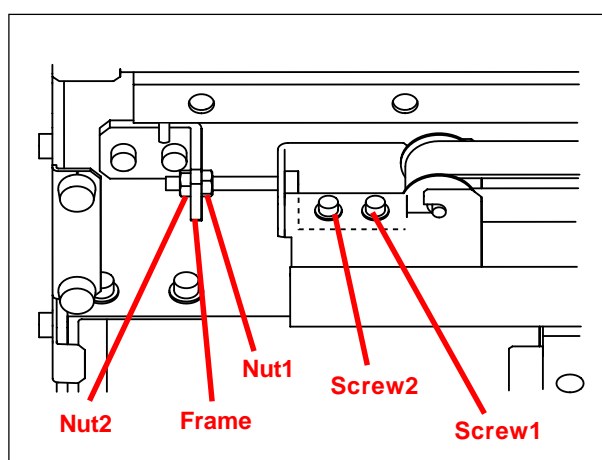
- 2** Remove the Rail Cover.



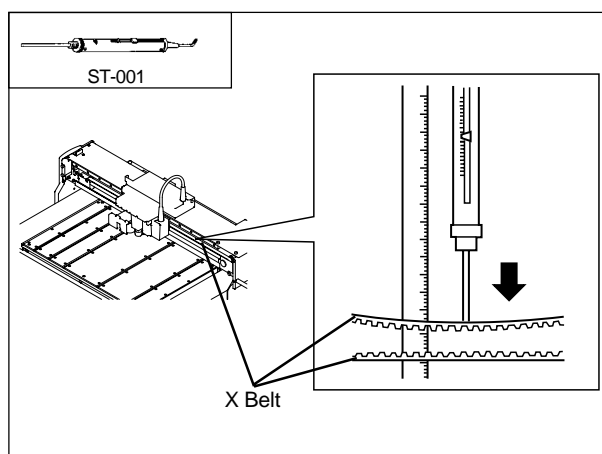
- 2** Loosen the Screw1 and 2 and then, loosen the Nut1 and 2. Tighten up the Nut2 so that there is no gap between the Frame and the Nut1.



It is possible to adjust the X Belt Tension by changing the position of the Nuts.



- 3** Push the X-Belt with the Tension Gauge (ST-001) at the middle position between the X-Drive Pulley and check the bending amount with the ruler. Confirm that the Pressing Force matches with the Bending Amount in reference to the next table.

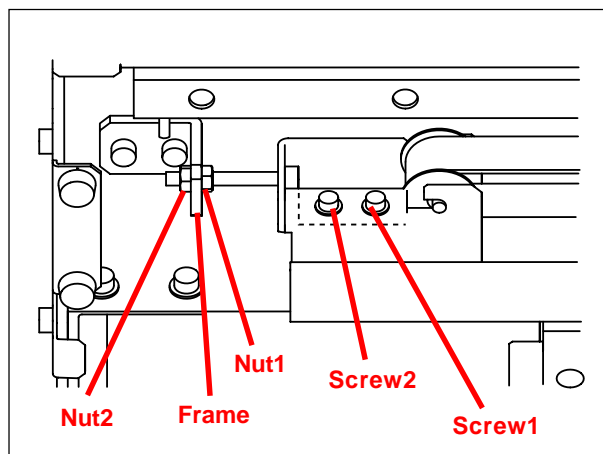


<Reference Table>

	Pressing Force	Bending Amount
EGX-600	720gf	10.0mm
EGX-400	720gf	7.0mm

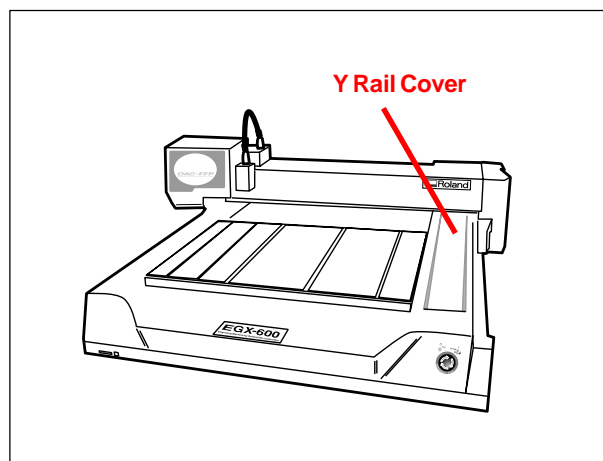
4 When the Pressing Force matches with the Bending Amount, tighten up the Screw1 and 2.

If the Pressing Force does not match with the Bending Amount, adjust the Belt Tension by Nut1 and 2 again. After that, measure the tension and when the Belt Tension becomes to the proper value, tighten up the Nut1 and 2.



4-5 Y BELT TENSION ADJUSTMENT (Referential Time : 10min.)

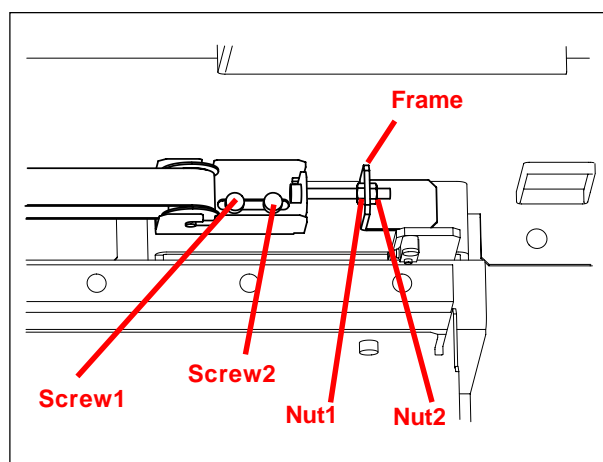
- 1** Remove the Y Rail Cover.



- 2** Loosen the Screw1 and 2 and then, loosen the Nut1 and 2. Tighten up the Nut2 so that there is no gap between the Frame and the Nut1.

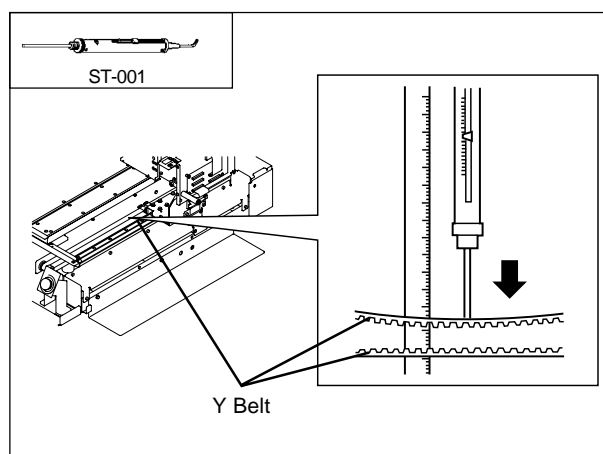


It is possible to adjust the X Belt Tension by changing the position of the Nuts.



4

- 3** Push the Y-Belt with the Tension Gauge (ST-001) at the middle position between the Y-Drive Pulley and check the bending amount with the ruler. Confirm that the Pressing Force matches with the Bending Amount in reference to the next table.

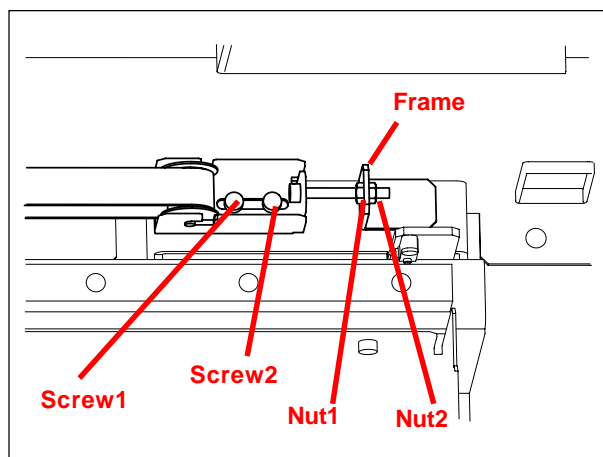


<Reference Table>

	Pressing Force	Bending Amount
EGX-600	720gf	8.0mm
EGX-400	720gf	6.0mm

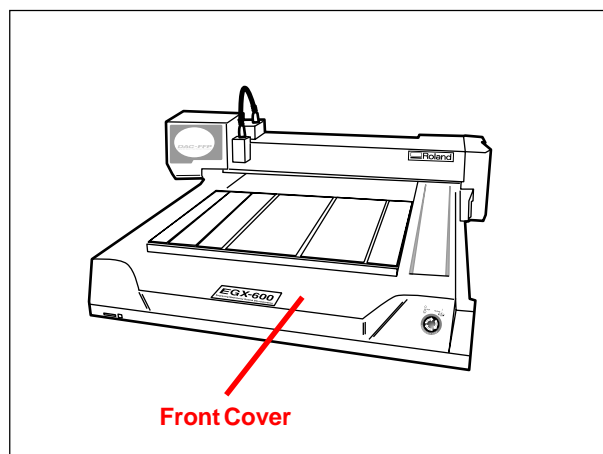
- 4** When the Pressing Force matches with the Bending Amount, tighten up the Screw1 and 2.

If the Pressing Force does not match with the Bending Amount, adjust the Belt Tension by Nut1 and 2 again. After that, measure the tension and when the Belt Tension becomes to the proper value, tighten up the Nut1 and 2.

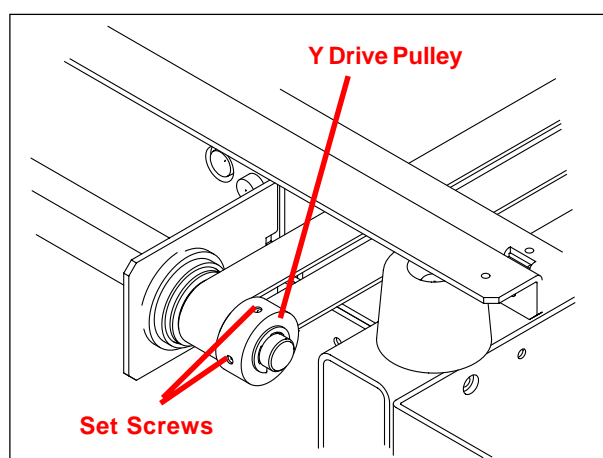


4-6 RIGHT ANGLED ADJUSTMENT OF X-RAIL (Referential Time : 5min.)

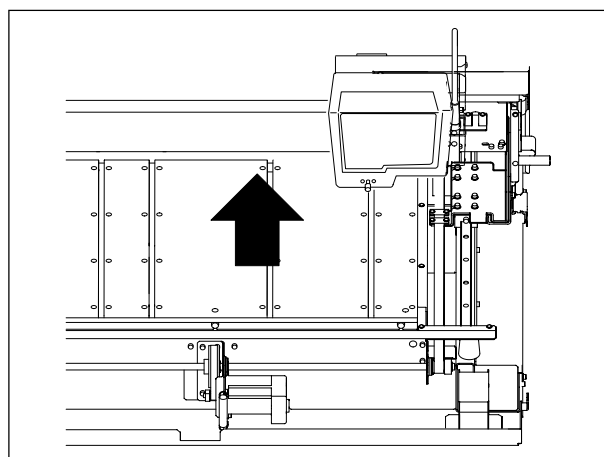
- 1** Remove the Front Cover.



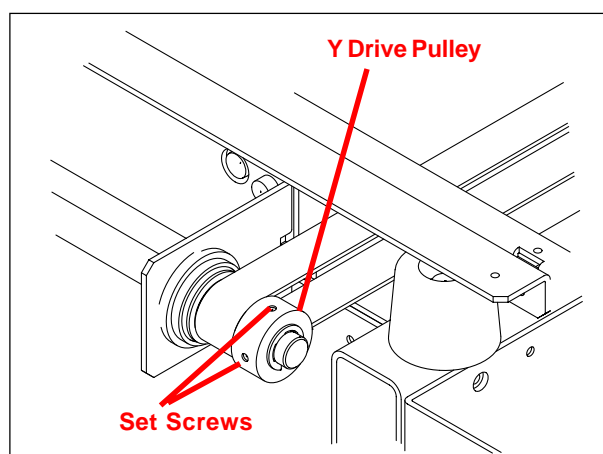
- 2** Loosen the Set Screws of the Y Drive Pulley.



- 3** Move the X-Rail to the Rear side frame.



- 4** Tighten the Set Screws by pushing the X Rail to rear side frame.
Make sure that the Y Drive Pulley won't idle.

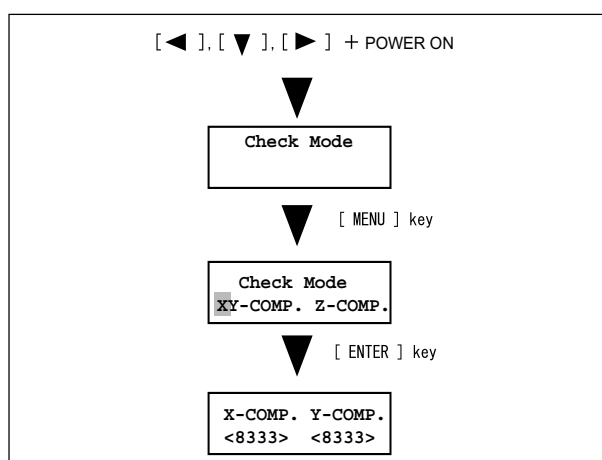


4

4-7 CALIBRATION (Referential Time : 20 minutes)

- 1 Attach the ZEC-A2025 and ACRYLIC PLATE (over 25cm x 19cm) to the machine.

- 2 Enter the SERVICE MODE by turning on the power while pressing [◀], [▼] and [▶] keys and select [XY-COMP.] under the [Check Mode XY-COMP. Z-COMP.] and press [ENTER] key.
Set both [X COMP.] and [Y COMP.] to default [8333] and press the [ENTER] to save the settings.
Turn off the power after setting is completed.

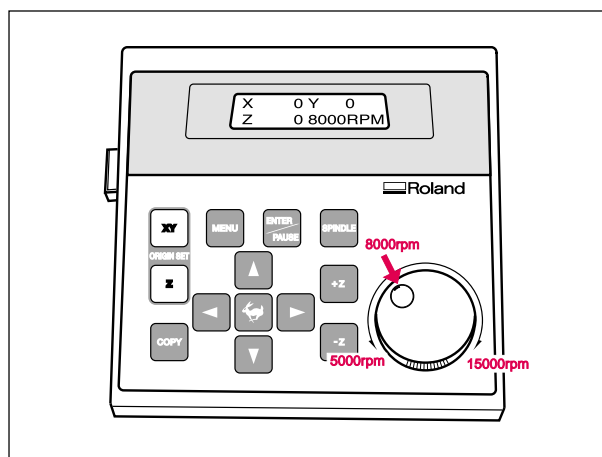


- 3 Turn on the power and set the other settings as shown below.

Turn off the power after setting is completed.

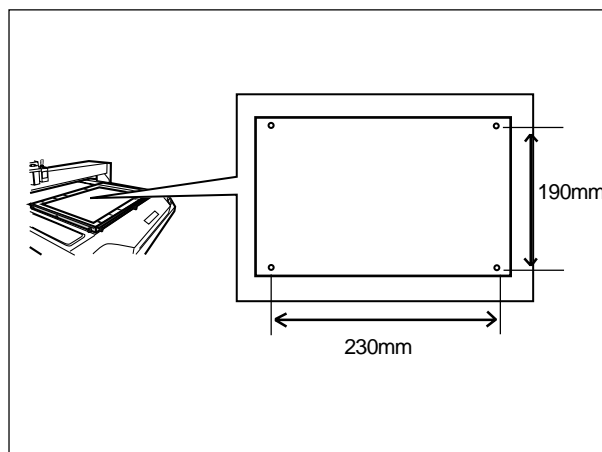
SETTING:

HOMEPOSITION : Left Lower Corner
 ZO : Surface of the material
 SpindleRPM : 8,000 rpm



- 4 Turn on the power while pressing [▲] key to enter the [Calibration Mode].

EGX-600/400 engraves as the figure.



5 Measure the both X-axis and Y-axis Length.

6 Calculate the calibrating amount by the formula shown at the right.

< X-axis Calibration >

$$\frac{0.8333}{\text{Measured Length}} \times 230 = \text{Calibrating Amount}$$

< Example >

When Measured Length is 229.5mm.

$$\frac{0.8333}{229.5} \times 230 = 0.83512$$

< Y-axis Calibration >

$$\frac{0.8333}{\text{Measured Length}} \times 190 = \text{Calibrating Amount}$$

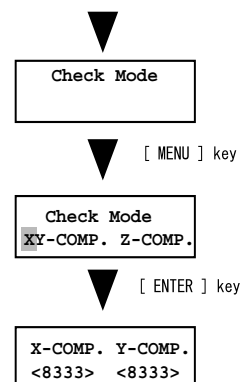
< Example >

When Measured Length is 189.5mm.

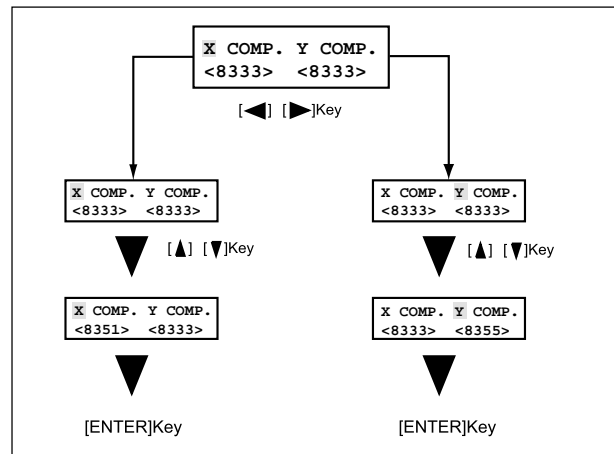
$$\frac{0.8333}{189.5} \times 190 = 0.83550$$

7 Enter the SERVICE MODE by turning on the power while pressing [◀], [▼] and [▶] keys and select [XY-COMP.] under the [Check Mode XY-COMP. Z-COMP.] and press [ENTER] key.

[◀], [▼], [▶] + POWER ON



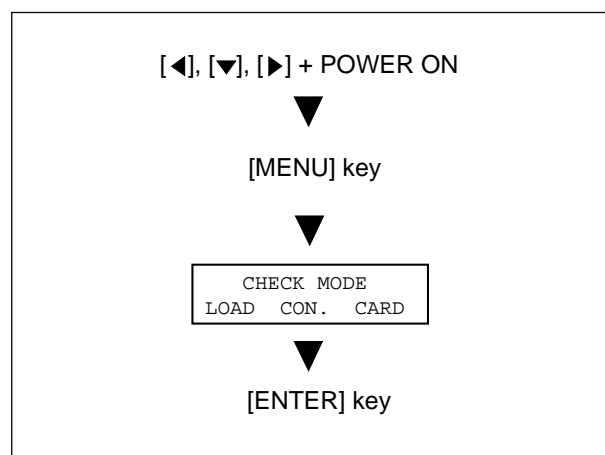
- 8** Select either [X COMP.] or [Y COMP.] whichever to be calculated with [◀] and [▶] keys.
Enter the calibrating amount with [▲] and [▼] keys and press [ENTER] key to save the setting.



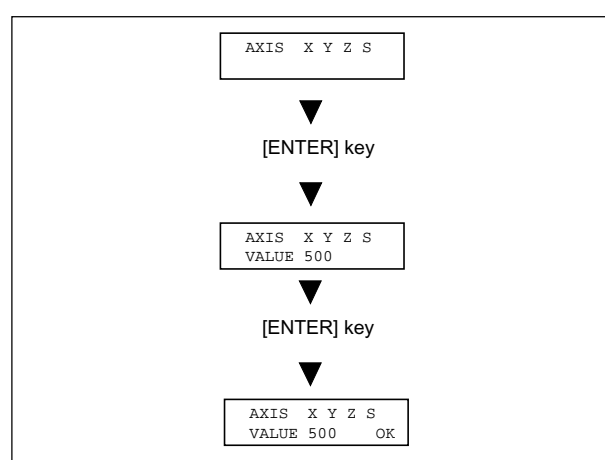
- 4** **9** Attach the ACRYLIC PLATE to the machine and turn on the power while pressing [▲] key to enter the [Calibration Mode] so that the EGX-600/400 engraves.
And then, check the length.
If NG, repeat [6] to [8].

4-8 X Axis Load Check (Referential Time : 8 minutes)

- 1 Turn on the Power while pressing the [◀], [▼], [▶] keys to enter the Service Mode.
Select the [LOAD] menu by pressing the [MENU] key and press [ENTER] key.



- 2 Select the [AXIS X] in the [LOAD] menu and press [ENTER] key. Then, Carriage moves to the Limit Position.
Enter the value 500 and press the [ENTER] key.

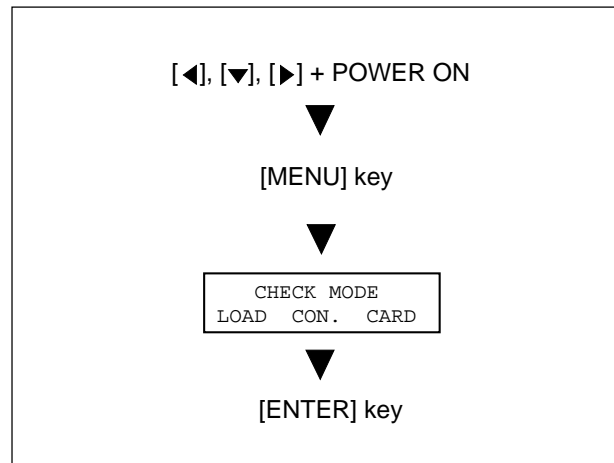


- 3 After setting the value, the load check starts.
The Carriage moves in the X direction to check the load.

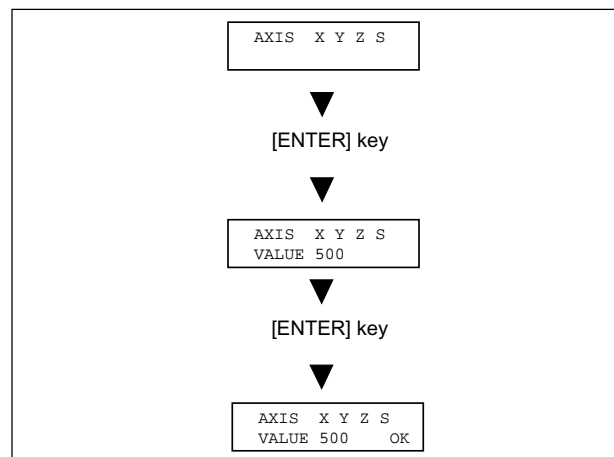
4

4-9 Y Axis Load Check (Referential Time : 8 minutes)

- 1 Turn on the Power while pressing the [◀], [▼], [▶] keys to enter the Service Mode.
Select the [LOAD] menu by pressing the [MENU] key and press [ENTER] key.



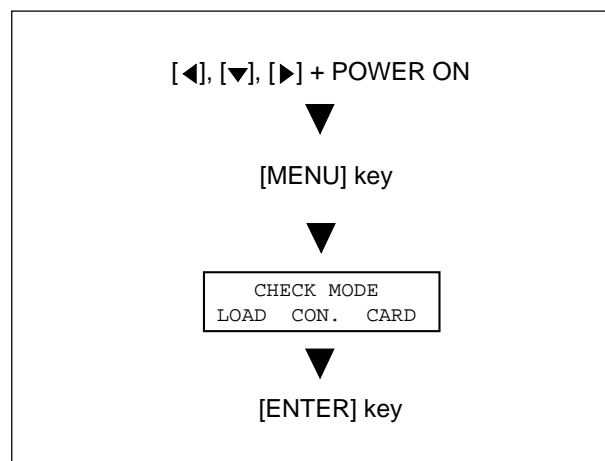
- 2 Select the [AXIS Y] in the [LOAD] menu and press [ENTER] key. Then, Carriage moves to the Limit Position.
Enter the value 500 and press the [ENTER] key.



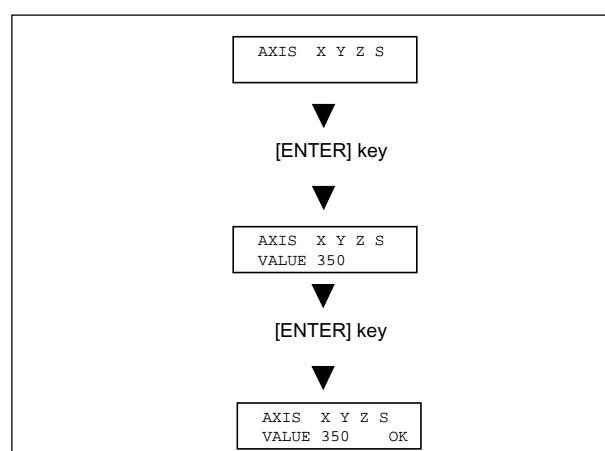
- 3 After setting the value, the load check starts.
The Carriage moves in the Y direction to check the load.

4-10 Z Axis Load Check (Referential Time : 8 minutes)

- 1 Turn on the Power while pressing the [◀], [▼], [▶] keys to enter the Service Mode.
Select the [LOAD] menu by pressing the [MENU] key and press [ENTER] key.



- 2 Select the [AXIS Z] in the [LOAD] menu and press [ENTER] key. Then, Carriage moves to the Limit Position.
Enter the value 350 and press the [ENTER] key.

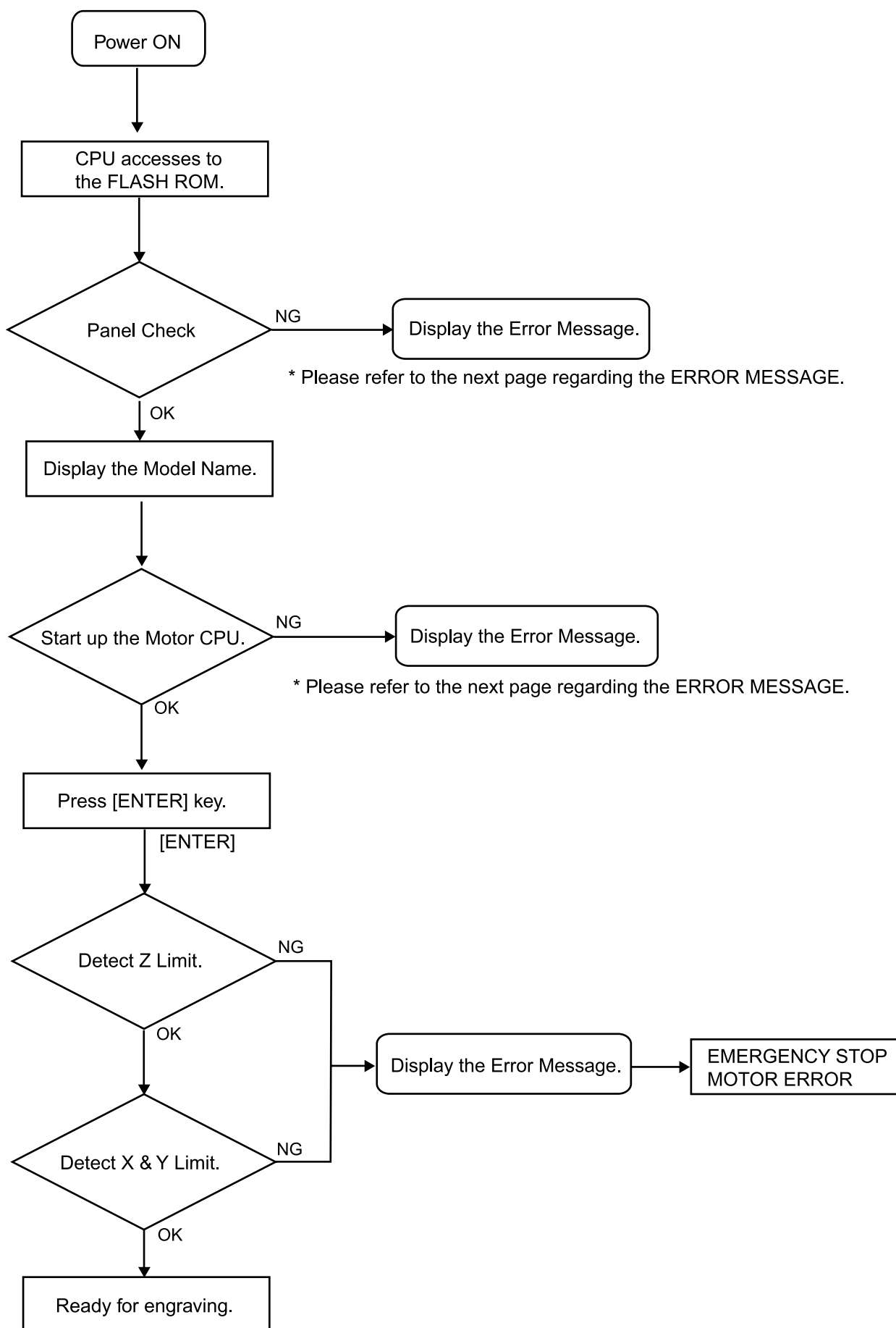


- 3 After setting the value, the load check starts.
The Carriage moves in the Z direction to check the load.

4

5-1 OPERATIONAL SEQUENCE

5



ERROR MESSAGE LIST

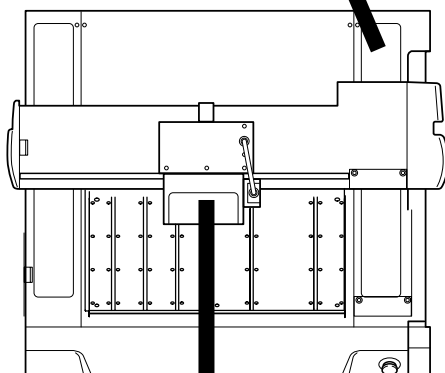
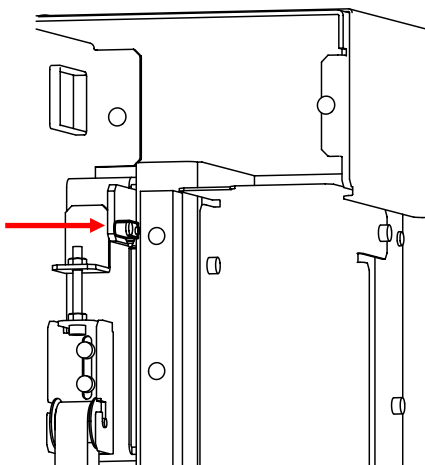
ERROR MESSAGE	SYMPTOM	DESCRIPTION
Multi Interrupt Error	Data communication is not properly done between the Main CPU and the Sub CPU.	There could be the problem in the Main Board
Multi Status Error		
Multi Time Over Error		
Multi Communication Err		
H8S Firmware Download Error		
Panel Interrupt Error	Data communication is not properly done between the Main CPU and the Operating Panel.	There could be the problem between the Operating Panel and the Main Unit.
Panel Status Error		
Panel Time Over Error		
Panel Indetermi- nate Error		
Flash ROM Erase Error	It is not possible to access the Flash Rom properly.	There could be the problem in the main board or flash ROM.
Flash ROM Write Error		
Flash ROM Initialize Error		

5-2 SENSOR MAP

5

Y LIMIT SENSOR

This switch detects the limit in Y direction.

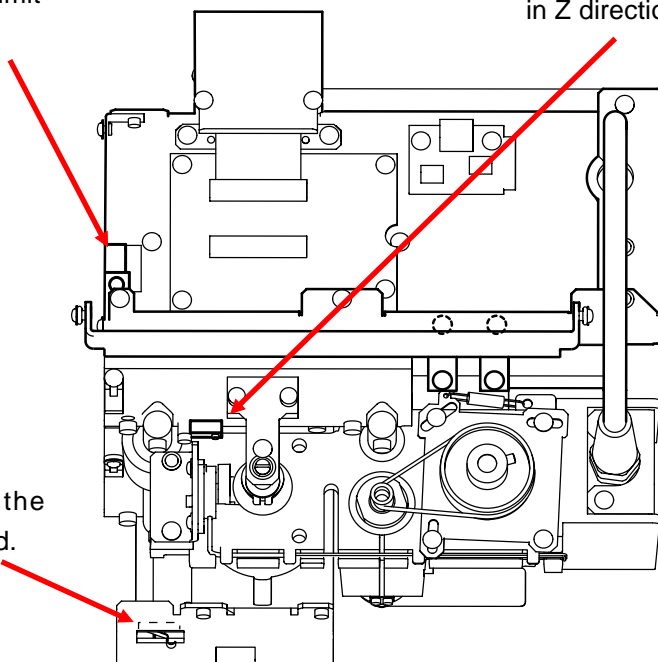


X LIMIT SENSOR

This switch detects the limit in X direction.

Z LIMIT SENSOR

This switch detects the limit in Z direction.

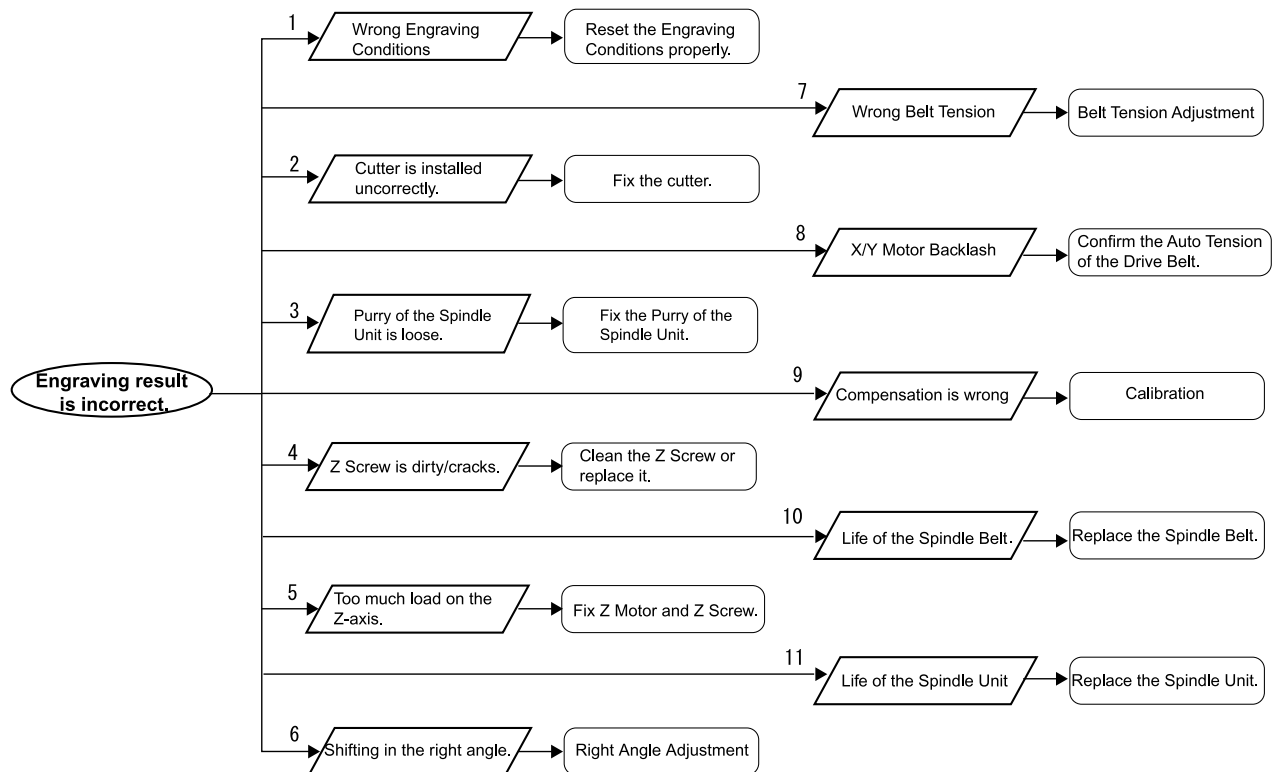


SPINDLE COVER SWITCH

This switch detects whether the Spindle Cover is opened or closed.

6-1 POOR ENGRAVING RESULT (Shifting / Wavy line / Unstable depth)

Poor Engraving Result Flowchart

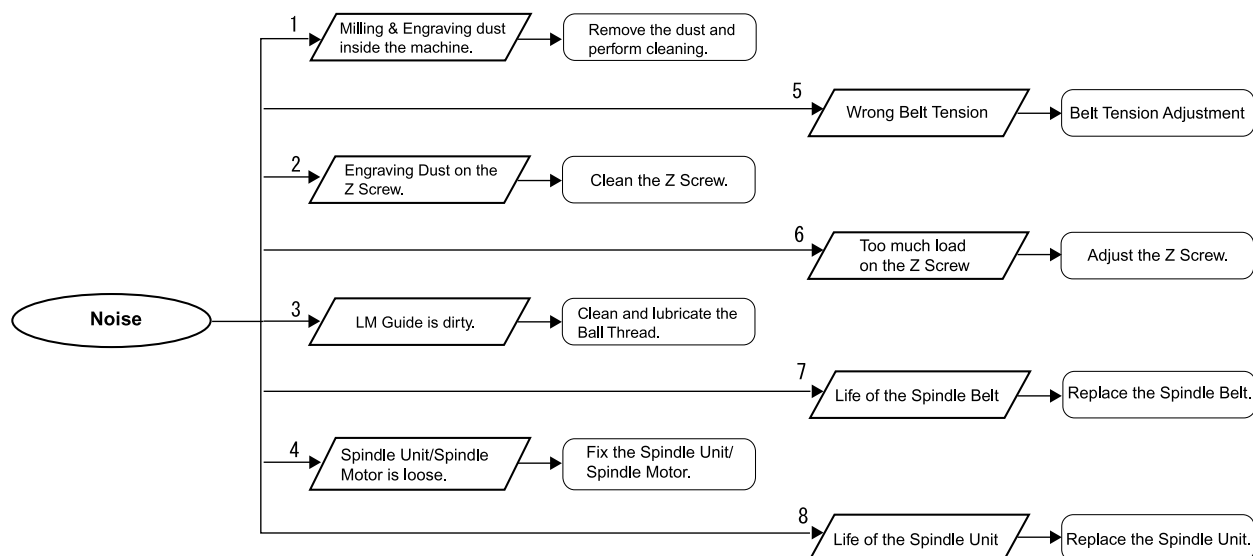


Poor Engraving Result_Outline

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Wrong Engraving Conditions	Reset the Engraving Conditions properly.		When setting up the engraving speed too fast or cut-in depth too deep, load on the motor increases and missteps the co-ordinates mechanically or vibration in the tool could result in the shifting in engraving. Reset the engraving conditions properly for the material.
2	Is the Cutter installed correctly?	Fix the cutter.		When the Cutter is not installed correctly, the engraving result becomes unstable. Please take care whether to use the nose unit.
3	Pulley and Shaft of the Spindle Unit are loose.	Fix the Pulley and the Shaft of the Spindle Unit.		When the Pulley and the Shaft of the Spindle Unit are loose, the revolution of the cutter is unstable and affects the engraving result.
4	Z Screw is dirty/cracks.	Clean the Z Screw or replace it.		When the Z Screw/Z Screw Base cracks, Z-axis doesn't move smoothly, it affects the engraving result.
5	Too much load on the Z-axis	Fix the Z Plate, Z Motor and Z Screw.		When there is too much load on the Z-axis, the Up/Down movement can not be done smoothly, it affects the engraving result.
6	Shifting in the right angle	Right Angle Adjustment	Sect4 [Right Angle Adjustment]	When the Right Angle is not adjusted properly, the engraving result shifts in Y direction.
7	Wrong Belt Tension	Belt Tension Adjustment	Sect4 [X/Y BeltTension Adjustment]	When the tension is wrong, the circle is distorted and start & end points do not match.
8	X/Y Motor Backlash	Confirm the auto tension of the drive Belt.		When there is the Backlash, the Circle is distorted and start & end points do not match.
9	Compensation is wrong.	Calibration	Sect4 [Calibration]	When the compensation is not done properly, the line becomes long or short.
10	Life of the Spindle Belt	Replace the Spindle Belt.		Life time of the Spindle Belt is 2,000 hours. When it becomes close to the life, the Spindle Belt flutters and it affects the revolution of the Spindle Unit and causes the engraving result to be poor.
11	Life of the Spindle Unit	Replace the Spindle Unit.		Life time of the Spindle Unit is 2,000 hours. When it becomes close to the life, the engraving result is poor.

6-2 NOISE

Noise_Flowchart



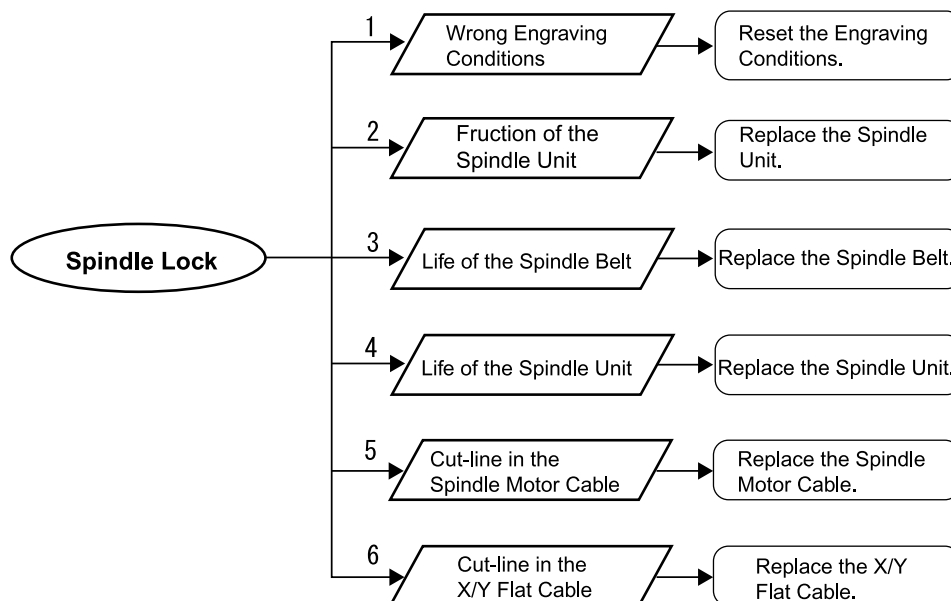
6

Noise_Outline

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Engraving dust inside the machine	Remove the dust and perform cleaning		Noise comes out when the dust goes inside the mechanical part of the machine.
2	Engraving dust on the Z Screw.	Clean the Z Screw.		Noise comes out when the dust goes inside the mechanical part of the machine.
3	LM Guide is dirty	Clean and lubricate the LM Guide		When the LM Guide becomes dirty or lubrication is not enough, noise comes out when it moves due to the resistance.
4	Spindle Unit/Spindle Motor is loose.	Fix the Spindle Unit/Spindle Motor.		When the Spindle Unit/Spindle Motor is not fixed correctly, the noise comes out when the spindle rotates.
5	Wrong Belt Tension	Belt Tension Adjustment	Sect4 [X/Y Belt Tension Adjustment]	When the tension is wrong, the noise comes out.
6	Too much load on the Z Screw	Adjust the Z Screw.		When the Z Screw is fixed firmly, there is too much load on the Z Screw, therefore, the noise comes out.
7	Life of the Spindle Belt	Replace the Spindle Belt.		Life time of the Spindle Belt is 2,000 hours. When it becomes close to the life, the Spindle Belt flutters and it affects the revolution of the Spindle Unit and causes the noise to come out.
8	Life of the Spindle Unit	Replace the Spindle Unit.		Life time of the Spindle Unit is 2,000 hours. When it becomes close to the life, the bearing inside the Spindle Unit wears with the revolution. When it wears out, the shaft revolves eccentric and causes the noise to come out.

6-3 SPINDLE LOCK

Spindle Lock_Flowchart

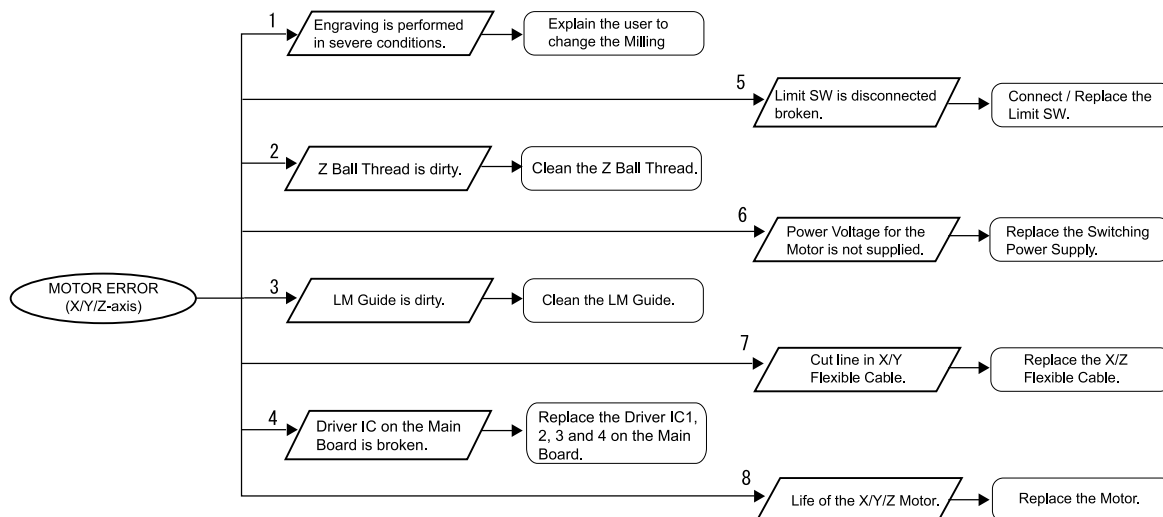


Spindle Lock_Outline

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Wrong Engraving Conditions	Reset the Engraving Conditions.		When setting up the engraving speed too fast or cut-in depth too deep, load on the motor increases and the Spindle Lock happens. Reset the engraving conditions properly for the material.
2	Friction of the Spindle Unit	Replace the Spindle Unit.		Engraving dust goes inside the bearings of the Spindle Unit and lock them.
3	Life of the Spindle Belt	Replace the Spindle Belt.		Life Expectancy is 2000 hours. When the Spindle Belt becomes close to the life, Spindle Lock Error could easily occur.
4	Life of the Spindle Unit	Replace the Spindle Unit.		Life Expectancy is 2000 hours. When the Spindle Unit becomes close to the life, Spindle Lock Error could easily occur.
5	Cut-line in the Spindle Motor Cable	Replace the Spindle Motor Cable.		If there is a cut-line in the Spindle Motor Cable, the voltage necessary to revolve the Spindle Motor won't be supplied.
6	Cut-line in X/Z Flexible Cable	Replace X/Z Flexible Cable		If the spindle motor always revolves unstable at the same position, there could be cut-line in the X/Z Flexible Cable.

6-4 MOTOR ERROR (X, Y, Z AXIS)

Motor Error (X, Y, Z axis)_Flowchart



Motor Error (X, Y, Z axis)_Outline

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Engraving is performed in severe conditions	Explain the user to change the Milling & Engraving conditions		When setting up the engraving speed too fast or cut-in depth too deep, load on the motor increases and results in Motor Error. In most cases, the machine will be recovered by turning it off and on again. However, if the modelling and engraving conditions are not reset properly for the material, motor error reoccurs or the tool wears out quickly. In the worst case, tool could break.
2	Z Ball Thread is dirty	Clean and lubricate the Z Ball Thread		When the Z Ball Thread is dirty and doesn't rotate smoothly, too much load will be put onto the motor which is driving the Z Ball Thread and results in the motor error.
3	LM Guide is dirty	Clean and lubricate the LM Guide		When there is too much load in the movement of the LM Guide, the load will be put onto the motor and results in the motor error.
4	Motor Driver IC on the Main Board is broken.	Replace the Motor Driver IC 1, 2, 3 and 4 on the Main Board		Motor Driver IC is a chip to supply the current to drive the motor. When it is broken, motor doesn't rotate as instructed by the servo chip and results in Motor Error because the IC can not supply the correct current.
5	Limit SW is disconnected / broken.	Connect / Replace the Limit SW.		When the Limit SW is not connected correctly or broken, Limit position can not be detected and results in the Motor Error.
6	Power Voltage for the Motor is not supplied	Replace the Switching Power Supply		The Power Voltage for the Motor can be checked at CN9 on the Main Board. 1st pin -> GND 4th pin -> +36V
7	Cut-line in X/Z Flexible Cable	Replace X/Z Flexible Cable		If the motor error occurs always at the same position and there is no load in the mechanical movement, there could be cut-line in the X/Z Flexible Cable.
8	Life of the X/Y/Z Motor	Replace the Motor		EGX-600/400 uses the AC Servo Motor which doesn't have brushes. However, in a long run, bearing inside the motor will wear and put load in its revolution resulting in the motor error.

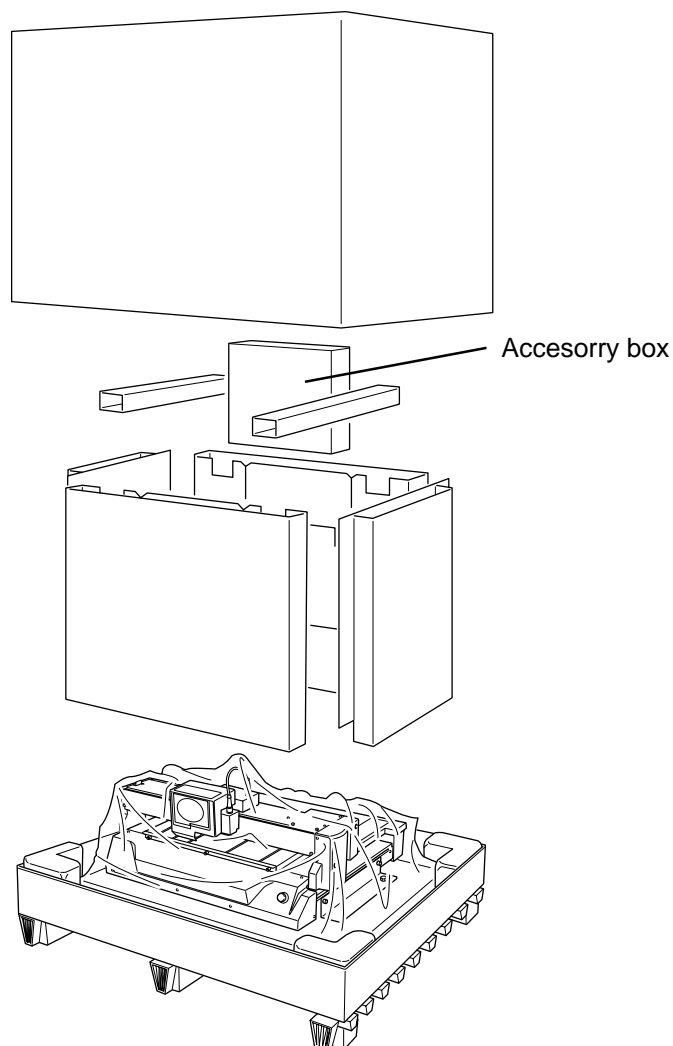
7 Service Activities

7-1 INSTALLATION CHECK LIST

EGX-600/400 INSTALLATION CHECK LIST

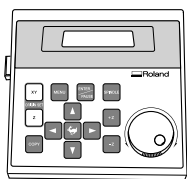
Model	Serial No.	User Name	Date
EGX-600/400			
Minimum Space Required			
EGX-600		EGX-400	
995mm(W) X 820mm(L) X 521mm(H)		795mm(W) X 719mm(L) X 521mm(H)	
Classification			
Purchase	Loan Unit	Demo Unit	Replacement

- ☐ Unpacking ☐ Take the unit out of the carton box.

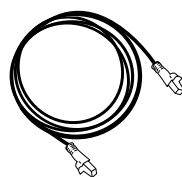


☐ Accessories

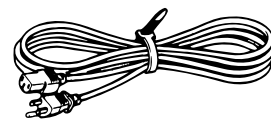
Follow the steps in "Unpacking and Repacking" on the packing carton to take out the included items and accessories. Before you attempt installation, make sure all the included items are present.



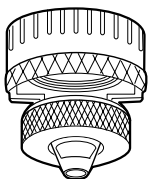
Operation panel : 1



Operation-panel
connector cable : 1



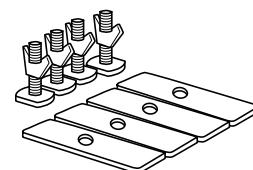
Power cord : 1



Depth regulator
nose unit : 1



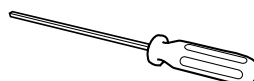
Solid collet : 1 (*1)



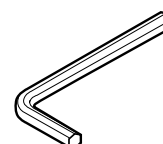
Clamps : 4 (*2)



Wrenches
(17 mm : 1, 10 mm : 1)



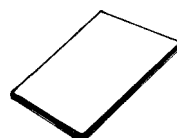
Hexagonal screw driver (2
mm) : 1



Hexagonal wrench
(3 mm) : 1



Roland Software Package
CD-ROM : 1



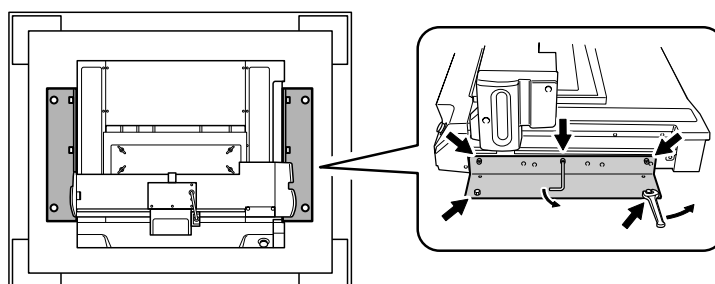
User's Manual : 1

*1 This is for diameter 4.36 mm character cutters and flat cutters. It cannot be used with diamond scrapers or end mills.

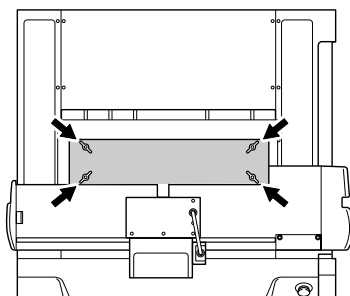
*2 The bolts and nuts are installed on the machine. (They are used for attaching the packing retainers.)

☐ Remove the retainers.

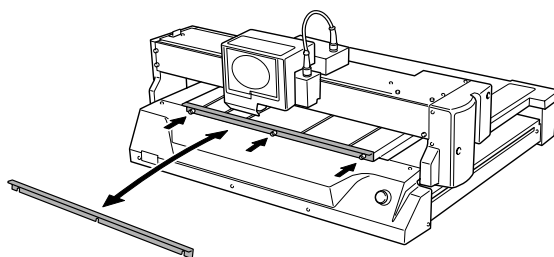
- ☐ 1. Use the included wrench (10mm) and hexagonal wrench (3mm) to remove the retainers on the side of the unit. Then, lower the unit from the base.



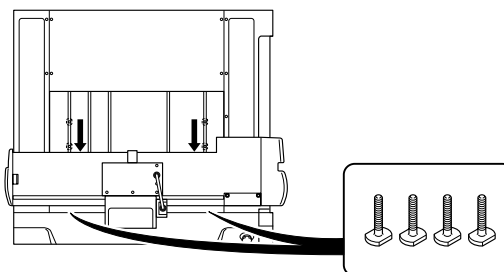
- ☐ 2. Remove the four nuts and the retainer shown in the figure.



- ☐ 3. Loosen the three screws shown in the figure and remove the guide temporarily

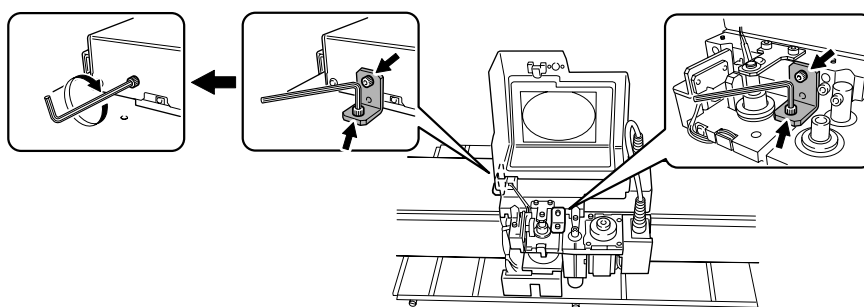


- ☐ 4. Slide the bolts left on the table in step 2 to detach them.



- ☐ 5. Mount the guide at its original location.

- ☐ 6. Use the included hexagonal wrench (3mm) to remove the retainers for the spindle head. Then secure the screw on the left side of the head at its original location.



<input type="checkbox"/> EGX-600/400 User Explanation Operation	<input type="checkbox"/> Emergency Stop to Ensure Safety The machine immediately stops operating and quits engraving by pressing the emergency stop switch. <input type="checkbox"/> Switching the Power On and Off <input type="checkbox"/> Moving the Spindle Head The speed of movement is determined by how you press the movement buttons. This machine has the function that moves the spindle head directly to the back-left position of the table (the VIEW position). <input type="checkbox"/> Starting and Stopping Spindle Rotation To adjust the spindle rotating speed, you use the dial on the operation panel. <input type="checkbox"/> Menu Operations <input type="checkbox"/> Selecting the Cutter Installation Method 1. Character cutter , Flat cutter (with nose unit) 2. Character cutter , Flat cutter (without withoutse unit) 3. Diamond scraper (without withoutse unit) 4. End mill (without withoutse unit) <input type="checkbox"/> Loading Material and Setting the Reference Point for Cutting 1. Clamp 2. Adhesive sheet 3. Center vice The reference point for engraving is the location where the X- and Y-axis coordinates are both (that is, the X- and Y-axis origin point). <input type="checkbox"/> Setting the Cutting Parameters There are five kinds of settings and you can make the settings for these either on the machine by using the menus, or by using the program. 1. Spindle rotating speed 2. Feed rate in the X- and Y- axis directions 3. Feed rate in the Z-axis direction 4. Cutting depth (Z1) 5. Amount of cut-out during feed while raised (Z2) <input type="checkbox"/> Installation and Setup the Software <input type="checkbox"/> Coordinate Systems <input type="checkbox"/> Detailed Description of the Menus
<input type="checkbox"/> EGX-600/400 User Explanation Maintenance	<input type="checkbox"/> Daily Care Clean the table, bed, the spindle head and the X-axis rail. <input type="checkbox"/> Maintenance and Inspection Spindle Maintenance
<input type="checkbox"/> Others	<input type="checkbox"/> Examples of Setting for Engraving Parameters <input type="checkbox"/> The Nose Unit <input type="checkbox"/> Optional Items

7-2 MAINTENANCE CHECK LIST

EGX-600/400 MAINTENANCE CHECK LIST

Date

Model	Serial No.
EGX-600/400	

MECHANICAL PARTS

Check Points			Confirmation
X axis	1. Drive Pulley	Crack/Dirt	
	2. Belt	Tension	
	3. Backlash	Looseness	
Y axis	1. Drive Pulley	Crack/Dirt	
	2. Belt	Tension	
	3. Backlash	Looseness	
Z axis	1. Z Screw	Smooth movement	
		Dirt	
	2. Spindle Assy	Vibration	
		Looseness	

7

COMSUMABLE PARTS

Description	Life	Confirmation
Spindle Belt	2,000 hours	
Spindle Unit	2,000 hours	

LUBRICATION

Check Points		Confirmation
Floil G-902Y	X Drive Gear	OK / Cleaning & Lubrication
	Y Drive Gear	OK / Cleaning & Lubrication
	Z Screw	OK / Cleaning & Lubrication

FUNCTION CHECK

Check Points		Confirmation
1. Update Firmware to the latest version.		
2. Compensation		
3. Engraving Test	Wavy Line	
	Distorted figure	
	Noise	
4. Panel Switch		
5. Connection check with Customer's PC		

7-3 Specification

	EGX-600	EGX-400
Table type	T slot	
Table size	610 (W) x 407 (D) mm (24 (W) x 16 (D) in.)	407 (W) x 305 (D) mm (16 (W) x 12 (D) in.)
Cutting area	610 (X) x 407 (Y) x 42.5 (Z) mm (24 (X) x 16 (Y) x 1-5/8 (Z) in.)	407 (X) x 305 (Y) x 42.5 (Z) mm (16 (X) x 12 (Y) x 1-5/8 (Z) in.)
Loadable workpiece thickness	Maximum 40 mm (1-9/16 in.)	
XYZ-axis motor	AC servo motors (DAC-FFP), 3-axis simultaneous control	
Feed rate	XY-axis: 0.5, 1 to 100 mm/s (0.02 in./s, 0.039 to 3.9 in./s) Z-axis: 0.5, 1 to 50 mm/s (0.02 in./s, 0.039 to 1.9 in./s)	
Acceleration	0.1 G, 0.05 G	
Software resolution	0.01 mm/step (0.00039 in./step)	
Mechanical resolution	XY-axis: 0.003 mm/step (0.00012 in./step) Z-axis: 0.0025 mm/step (0.000098 in./step)	
Spindle motor	DC brushless motor, Maximum 72 W	
Spindle speed	8,000 to 30,000 rpm	
Tool chuck	Cutter holder (4.36 mm) and collet	
Positioning Accuracy	± 0.1 % of distance traveled or ± 0.1 mm (± 0.004 in.), whichever is greater (no-load operation)	
Repeatability	0.05 mm (0.002 in.) or less	
Display	LCD panel with backlight	
Buttons and Controls	Menu button, ENTER/PAUSE button, Spindle button, X/Y-axis Origin Set button, Z-axis Origin Set button, Movement buttons, Z-axis Movement buttons, Feed button, Copy button, and dial	
Interface	Parallel connector (Centronics-compliant), serial connector (RS-232C-compliant), Memory card slot (Compliance with Multi Media Card), expansion connector 1, expansion connector 2	
Buffer memory	2MB (replot buffer: 1.9MB)	
Instruction system	RML-1 (mode 1, mode 2)	
Power supply	AC 117 V, 230 V, 240 V ± 10 %, 50/60 Hz	
Power consumption	3.5 A at 117 V, 1.6 A at 230 V, 1.6 A at 240 V	
Acoustic noise level	No-load operation: 75 dB (A) or less standby: 45 dB (A) or less (According to ISO 7779)	
Dimensions (main unit)	995 (W) x 820 (D) x 521 (H) mm (39-3/16 (W) x 32-5/16 (D) x 20-1/2 (H) in.)	795 (W) x 719 (D) x 521 (H) mm (31-5/16 (W) x 28-5/16 (D) x 20-1/2 (H) in.)
Weight (main unit)	64 kg (141 lb.)	51 kg (112 lb.)
Packed dimensions	1370 (W) x 1130 (D) x 835 (H) mm (54 (W) x 44-1/2 (D) x 33 (H) in.)	1160 (W) x 1010 (D) x 855 (H) mm (45-3/4 (W) x 40 (D) x 33-3/4 (H) in.)
Packed weight	110 kg (243 lb.)	86 kg (190 lb.)
Operating environment	Temperature: 5 to 40°C (41 to 104°F) humidity: 35 to 80 % (no condensation)	
Accessories	Operation panel: 1, Operation-panel connector cable: 1, Power cord: 1, Depth regulator nose unit: 1, Solid collet : 1, Clamps : 4, Wrench (17 mm: 1, 10 mm: 1), Hexagonal screw driver (2 mm): 1, Hexagonal wrench (3 mm): 1, Roland Software Package CD-ROM : 1, User's Manual: 1	

Interface Specifications

Parallel Connector

Standard	In compliance with the specification of Centronics
Input signal	STROBE (1BIT), DATA (8BIT)
Output signal	BUSY (1BIT), ACK (1BIT)
I/O signal level	TTL level
Transmission method	Asynchronous

Serial Connector

Standard	RS-232C specification
Transmission method	Asynchronous, duplex data transmission
Transmission speed	4800, 9600, 19200, 38400
Parity check	Odd, Even, None
Data bits	7 or 8 bits
Stop bits	1 or 2 bits

 **Roland**

EGX-600/400